JAND FARMS TANZANIA LIMITED

AGRICULTURAL DEVELOPMENT AND NATURAL RESOURCES MANAGEMENT IN RUFIJI TANZANIA

JAND FARMS TANZANIA LIMITED

PROJECT DOCUMENT

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List of Abbreviations

BRELA	Business Registration and Licensing Agency
CBO	Community Based Organisation
EIA	Environmental Impact Assessment
EIS	Environmental Impact Statement
EMA	Environmental Management Act
EMS	Environmental Management System
ESIA	Environmental and Social Impact Assessment
FAO	Food and Agriculture Organisation
GDP	Growth Domestic Product
MEMAT	Memorandum and Articles of Association
NEMC	National Environmental Management Council
NGO	Non-Governmental Organisation
ToR	Terms of Reference
UNDP	United Nation Development Programme
URP	United Republic of Tanzania
WRI	World Resources Institute

Executive Summary

0.1 Introduction

JanD Farms Tanzania Ltd, is a locally registered company under the Companies Act, Revised Edition of 2002 of the United Republic of Tanzania registered under Business Registration and Licensing Agency (BRELA) with Certificate No. 138329798. The company has taken over the farm operations that were carried out by JanD Properties after effecting a Memorandum of Understanding (MoU) whereby, JanD Properties invited other members owning farms in Utunge, specifically farm Numbers 6847-6853 owned by Janet Mmari, Joyce Deotrephes, Teddy Mwakibete, Beatrice Makundi, Chantal Warioba, Emmanuel Malima, and Diotrephes Mmari respectively to put the farms under one ownership and management.

0.2 Company Beliefs and Project area profile.

The company believes very strongly that its location is ideal to feed the Southern "Gas Economy" towns of Lindi and Mtwara which are growing rapidly. Further Tanzania is aspiring to be an industrial economy and most factories depend on agricultural outputs to achieve this goal. In order to optimize use of all products, it is important to put in place means to control waste that occurs during harvesting and poor marketing outlets compared to supply. Hence, factories to preserve these produce are required to be in place and will go hand in glove with the country's industrialisation efforts.

Main economic activities in the study area include small-scale farming, which is carried out in flood plains, fishing, and wood harvesting particularly in mangrove forests, for fuel and timbering and crafts products (Mbiha et al., 2001). Most of the fishing activities and small-scale farming is carried out in the Rufiji River, the delta and some inland lakes formed by the flooding of Rufiji River (ibid). There is hardly what you will term large-scale farming,and therefore small holders dominate the farming practice. It is estimated that 95% of inhabitants of the district are farmers and fishermen. Most of the people in Rufiji have attained a primary education. However, only 5% have attained secondary education. Very few (1%) have technical education, while 18% have no formal education (URT, 2013).

0.3 Objectives of the Project

The main objective of the project is to invest in large scale paddy farming, cashew nuts, sesame and horticulture. In future phases of farm implementation, bee keeping, fish farming and poultry will be added to the program. The specific objectives of the project include expanding investment in agribusiness, increase production of poultry and fish farming, mobilise small-holder farmers and villagers to join as outgrowers under an association and engage in all agricultural activities, within the project trajectory. In addition, create a market and reduce the amount of food loss at the level of harvesting, storage and consumption, while, at the same time re-use the food waste products by utilising them as a feed stuff for fish and poultry as well as fertilizers.

0.4 Operations

The farm has been provisionally partitioned depending on soil type. These parcels consist of 200 acres of paddy, 140 acres of Cashew, 80 acres of sesame, 20 acres of sunflower, 5.0 acres of green house, 10.0 acres for Orchard, Millet, sorghum – rotational crops and Hortculture. At least 50 metres has been set aside along the river bank for various trees, mainly teak wood and other varieties as may be advised by the forestry agencies or NEMC and other experts. This is important because a lot of trees have been cut down and if urgent restoration measures are not taken, the area is under a big threat of being degraded. The remaining land will accommodate infrastructure to support the agricultural sector

0.5 Target Market

Target markets are varied depending on the product and season. A back of the envelope market survey shows that rice is for local markets and other markets especially East African and SADC countries. Vegetables including tomatoes and Green House commodities are for the local market, especially the Stigler's Gorge in Rufiji, Dar es Salaam, Mtwara and Lindi in the initial years. Off-season vegetables are in very high demand and therefore fetching very good prices in the local markets. Other products like sesame are for export and so is cashewnuts.

0.6 Financing

JanD Farms (T) Limited is looking at implementing this project in a phased approach. The company will spend about US $814,307(Tsh.1,872,905,000) to meet the Capital Expenditure (CAPEX). Planned Income to be generated over the same period is US$1,404,873 (Tsh.3,231,207,587) while Operational Expenditure (OPEX) over the plan period is US $1,243,001(Tsh.2,858,903,114) leaving a profit of US $161,872 (Tsh.372,304,471). The rate of exchange used in these forecasts is USD 1=Tzs. 2,300

0.7 National Benefits

The proposed project will:

i) expand investment in agribusiness leading to income growth among smallholders. The program uses "Tangible Goals Approach" as well as outgrowers see appendix 10
ii) generate employment across agribusiness value chains. Employment of between 32 to 60 people earning from 142mil to 301mil per year. (See appendix 9)
iii) expand tax base for the government. Employment Taxes over the five years is estimates at 171mil while cooperate tax is in the range of 154mil. (See Appendix 9)
iv) create a market for those in out-growers agreements or those selling directly to the production facilities
v) avail storage and other facilities/warehouses for the produce
vi) provide community education (not necessarily accredited) but knowledge and practical based.
vii) open up an investment opportunity in production of fish and poultry in Rufiji

viii) Create forward and backward linkages between livestock keeping and agricultural production.

ix) apply BOKASHI decomposition technology[1] to produce chicken feed and organic fertilizer in the project area.

x) provide “Local Participation” to the economic development in the area because of Selous Game Reserve and Stigler’s Gorge Electricity generation plan in Rufiji.

0.8 Conclusion

Tanzania is set to industrialise. At the moment, most of what is grown, be it coffee, cashew, sim sim, cassava, etc. is exported as raw materials for factories elsewhere in the world. Vegetables and fruits are grown in season depending on rains, and as a result, farmers get bumper crops flooding the market and ultimately fetching very low prices. They are thus impoverished more and to some extent driven away from agriculture to becoming petty traders, hawkers, and or unemployed. There is also a very high risk of post harvest losses due to poor storage and lack of market. Solutions to these problems must be sought and put in practice for the benefit of all.

[1]). BOKASHI are Effective Micro-Organisms (EMO’s) (beneficial micro-organisms) occurring naturally in different environments, which can be used for improving microbe diversity in soils and plants. These bacteria start fermentation and decomposition of substances such as food waste.

Main Report

1.0 Introduction

1.1 The Company

JanD Farms Tanzania Ltd is a locally registered company under the Companies Act, Revised Edition of 2002 of the United Republic of Tanzania under Business Registration and Licensing Agency (BRELA) with Certificate No. 138329798 (see Appendix 1.) The company has taken over the farm operations that were carried out by JanD Properties and other farmers after a Memorandum of Understanding (MoU) whereby, JanD Properties invited other members who had farms in Utunge, specifically farm Numbers 6847-6853 owned by Janet Mmari, Joyce Deotrephes, Teddy Mwakibete, Beatrice Makundi, Chantal Warioba, Emmanuel Malima, and Diotrephes Mmari respectively to put the farms under one ownership. The consolidation/merging process was necessary in-order to fast–track the Farms development through professional farm management practices. The company is planning to develop the said parcels of land as well as promoting smallholder farmers involvement in Rufiji District in Agri-business. The website of the farm is (www.jandproperties.co.tz/home.html).

1.2 Operational Framework

1.2.1 Set Up

The promoters saw an opportunity to have farms operating as one entity in order to take advantage of joint-venture partners who are interested in larger scale operations rather than small fragmented farms. The climax came in after meeting some of the Business partners who come to Tanzania through TIC, TCCIA, Ministry of Industries and Trade to look for partners or joint ventures. In most cases interested parties shy away when they find out that the farms are limited in size. Consequently, it is not possible to attract the right partners and also it is quite expensive to carry out several tasks for each farm including partitioning the farm for different crops and managing operations professionally. The solution thereto, was consolidation to form one sizable farm now JanD Farms Limited.

Since then, JanD farms have been able to build small infrastructures including Farm house office, implements shed, bee house, and tilling at least 150 acres to test the farm for paddy, sesame and cashew nuts. In fact, an Israel agricultural consulting company has been engaged to do a complete feasibility studies of partitioning the farm, indicating what, where, when and how, is to be grown professionally.

Eventually, the operational framework embraces the idea of opening up to the neighbours or forming association/cooperative entities to engage smallholder farmers and villagers in agricultural production and environmental management. JanD farms envisages fulfilling this mission through development of their farms as model farms, mobilizing the farmers and villagers in groups, and encouraging them to outgrow and supply the created value chains. The impact of these innovative approaches will result in agricultural transformation, poverty reduction and improved peoples livelihood.

1.2.2 Location.

The company believes very strongly that its location is ideal to feed the southern "Gas Economy" towns of Lindi and Mtwara which are growing rapidly because of the gas economy. There is a dire need for local participation through supportive services such as putting food on the table which is lacking. Currently, supplies of most goods including meat, poultry products and vegetables for Lindi and Mtwara are sourced from other regions or imported from outside the country mainly South Africa and China. At the same time, the Stiegler's Gorge power project construction has a lot of staff camping at the site based in`Rufiji and will require provisions for a number of years. They have to be serviced.

Dar es Salaam has very little land for horticulture activities to feed the burgeoning population estimated to reach 6.701 million by 2020. Rufiji may become the future main hinterland for Dar es Salaam.

Furthermore, Tanzania is aspiring to be an industrial economy and most factories depend on agricultural outputs to further this mission. In order to prevent wastage that occurs during the harvesting due to poor marketing outlets compared to supply, it is necessary to put in place factories to preserve these produces and such activity will be in tandem with the country's industrialisation efforts. Hence, it is imperative to ensure that the company will have enough raw materials such as fruits, vegetables, cashew nuts and etc.

1.2.3 Why community based.

It has been necessary to involve the local community to participate as out growers. This underscores the need to create associations which will act as conduit for training in production and marketing.

In pursuit of this mission, the company is charged with the responsibility of providing a holistic agricultural development approach that takes into account the issues of environmental sustainability and natural resources management wing to the fact that the District is commonplace for flooding as it located in the flooding plains of the Rufiji River Basin.

1.2.4 Natural Resources and Management.

The company believes in a balanced approach to managing natural resources and the impact of agricultural transformation. It is now widely recognised that agriculture is business but a company cannot operate without incorporating and working with the surrounding communities. Poverty eradication will only be possible if there is radical social change. This change will only happen if poor communities are enabled to manage and organise themselves in ways that contend existing power relations and engage key stakeholders to effectively set the agenda.

Policy-makers and other stakeholders such as corporate bodies, Non-Governmental Organisations (NGOs), Associations and Community Based Organisations (CBOs) have a key role to play in supporting communities to achieve this objective, especially when it comes to developing innovative alternatives to the status quo. This means social transformation should be translated and infused methodically in awareness creation programs. Social innovations for sustainability are emerging across the globe that demonstrate how plans and projects can foster the kind of active citizenship that results in change. These innovations can also occur in

agricultural value chains for sustainable development. It is in line with this transformations, JanD Farms Tanzania Ltd was established to engage on socio-transformation that will foster agricultural productivity and at the same time managing our natural resources while aiming at reducing poverty and improving people's livelihoods.

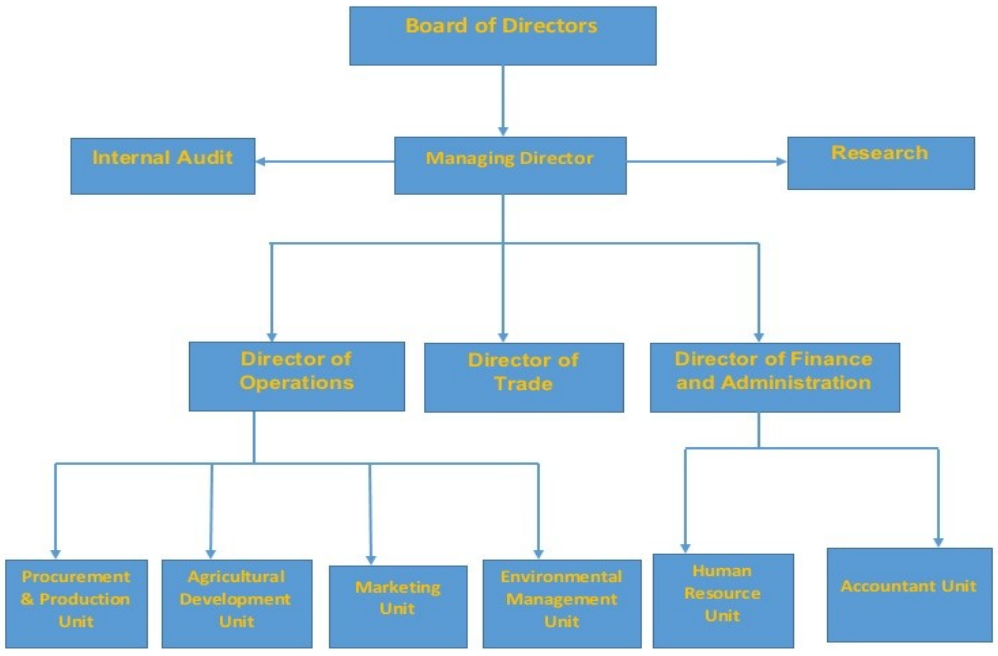
1.3 Tangible goals approach project

Tangible goals approach aims at increasing smallholder farmers and villager's involvement in agri-business in Rufiji District in the Coast Region. The company is setting out-growers to benefit from the agricultural value chain from farm preparation, production, and marketing. Under the association, the framework involves group mobilization, confirming the groups, entrepreneurship skills training, setting goals, how to generate funds for achieving the goals, development and implementation of tailor made courses, follow-up, as well as monitoring and evaluation. This project will involve hundreds of villagers and smallholder farmers in Rufiji District. In the long run, JanD Farms Ltd like any other stakeholder will benefit from getting continuous flow of the produce, skilled labour, and better working environment. At the same time the government will benefit through improved social services in the area, taxes and levies from exportation, environmental management and generally improved livelihood of the people in Rufiji.

1.4 Proposed Management structure and profile

The company intends to engage staff with diverse experience and exposure to enable the company tackle multi-disciplinary projects. Depending on the project needs, the nature and quality of service required, the company will bring on board appropriately skilled personnel from a developed network with leading experts in natural resources management, agricultural production, animal husbandry, beekeeping, green house as well as basic processing and other related disciplines. The management structure of the company is presented in figure 1 below

Figure 1: Management structure of the JanD Farms Tanzania Ltd Company



2.0 THE PROJECT

2.1 Project Objectives

The main objective of the project is to invest in large scale paddy farming, cashew nuts, sesame and horticulture. In future phases of farm implementation bee keeping, fishing and poultry production will be included. The specific objectives of the project include:

- Expand investment in agribusiness leading to income growth among smallholders and employment generation across agribusiness value chains in the Southern Corridor in general and Rufiji District in particular.
- Increase production of poultry and fish farming in the southern corridor with environmental caretaking.
- Expand southern corridor market of fish and poultry
- Mobilise small-holder famers and villagers to join the association and engage in fish farming and poultry production within the project trajectory (Their involvement could increase production from 800 to several thousands acres).
- Reduce the amount of food loss at the level of harvest, storage and consumption, while, at the same time re-use the food waste products to be utilised as a feed stuff for fish and poultry

In carrying out what is stated above, there shall be a need for a number of feasibilities; general as well as detailed feasibilities for different products. In addition to the feasibility study, there must also be an Environment Impact Assessment in order to ensure that the environment is kept safe.

2.2 Situation analysis

2.2.1 Population and Food Insecurity Statistics

The United Nations Population Division (UNPD) projects that the global human population will increase steadily from 7.2 billion in 2013 to 9.6 billion by 2050 (UNPD, 2013). Without doubt, the world's food production system will have to adjust to meet the nutritional needs of this surging population. This in itself is a huge challenge. Accordingly, different proposals on how to feed these teeming numbers exist. The population of Dar es Salaam was 4.5 mil in 2013 and is forecasted to be 6.701mil. by 2020 and 8.561 mil by 2025. The population of Tanzania in July 2018 was 59.091 mil and by Jan. 2019 is estimated to be 60.031mil. It is estimated that by 2025, it will rise to 72.681mi. (UN Population stats). The Food and Agricultural Organisation (FAO, 2006) maintains that there is need to increase world food production by about 70% by 2050 to meet the growing deficit between demand and supply. This position has received widespread support including from the World Resources Institute (WRI) which further argued that the current food production system cannot, by any means, feed the global human population by 2050.

However, current widespread focus on increased food production as the main strategy to reduce food insecurity has been subjected to a lot of criticism (Soil Association, 2010, Lundqvist et al., 2008) because there is considerable evidence that increasing food production may not necessarily improve global food security. It is argued that despite the extraordinary advancements in the agricultural productivity

arena over the past century through productive farming methods and improved crop varieties, many parts of the world are still food insecure (RSIS, 2013). The FAO (2014) estimates that globally, approximately 805 million people, or one in nine are chronically undernourished. The situation is worse in sub-Saharan Africa where one out of every four people is chronically hungry. In addition, factors such as rapidly declining soil fertility, climate change (e.g. extreme temperatures, flooding and long heat waves) and the decline of natural resources, all put limits on both current and increased levels of food production (Lundqvist et al., 2008). Put differently, food production cannot be increased indeterminately due to various factors (herein referred to as limits to food production) that come into play. Against this setting, authors such as Lundqvist et al. (2008) encourage increased efficiency in global food supply chain so that more food is accessed by more people in the world; the point being that food insecurity is not just due to lack of production but also is affected by limitations in the distribution system.

2.2.2 Inclusive, social and economic development.

Equally, the world agricultural system, now more than ever, needs to provide both social and economic development that is more inclusive (Searchinger et al., 2013). According to the FAO (2013) approximately 60% of the world's population relied on agriculture as a source of their livelihood. Agriculture contributes up to 30% of economic activity in a number of world's poorest countries (FAO, 2012). Yet, typically, people who work in agricultural sector earn less incomes which explains high levels of poverty amongst them, notably, those who dwell in the rural areas. Since majority of the world's poor depend on agriculture, the world's agricultural system must operate in a manner that not only delivers food for consumption but also contributes positively to the socio-economic wellbeing of individual farmers.

On the other hand, it is generally acknowledged that agriculture's ecological footprint is too large and threatens sustainability of the planet and must be reduced (Searchinger et al., 2013). Agricultural production withdraws natural resources from the environment in huge amounts that cause imbalances in the natural environment. For example, global food production: consumes 70% of all freshwater, causes 60% of human emissions of methane and 50% of nitrogen monoxide, contributes to eutrophication and formation of dead zones (International Assessment of Agricultural Science and Technology for Development-IAASTD, 2009). It is estimated that in 2010 alone, agricultural production contributed about 24 percent of the total global greenhouse gas emissions (Searchinger et al., 2013). Increased land clearing for agriculture has been associated with biodiversity loss and ecosystem degradation (IAASTD, 2009).

Clearly, the global food system is at crossroads. As a solution to this dilemma, the World Resources Institute (2012) explored a range of options, 'menu items' as they refer to them that must be put in place to synergistically work to avert the impending global food crisis (Searchinger et al., 2013). To qualify to be a menu item, an approach must be one that enhances socio-economic development while concurrently protecting the environment. At the very top of this list of 'menu items' is reducing food losses and food waste. The FAO (2011) also recognises the severity of food losses and has established a high-level panel of experts to track the extent of global food losses and waste.

2.2.3 Balancing Act.

While extensive resources are being invested in increasing agricultural productivity through genetic modification, better farming methods, improved agricultural disease control chemicals, as well as ecosystem limitations, larger gains in food availability could also be achieved by reducing food losses. Equally, suggestions have been made to boost resource supply efforts as a means of addressing the limitedness of global food production. However, these suggestions have not included resource efficiency, which is crucial for resource sustainability (Agrawal and Nag, 2013). Such efficiency demands both sound resource management and waste reduction.

Thus,the agricultural value chain from farm preparation, planting, harvesting, storage, and food consumptions by the end users should be taken as a 'menu item' to avert the impending global food crisis and reduce agricultural footprint (Searchinger et al., 2013). The company has put in a lot of consideration in both planned production, training, processing and storage,

2.3 Description of the project area

2.3.1 Project location

This project will be implemented on 800 acres located in Utunge village within Rufiji District in the Coast Region of Tanzania (figure 2). The district's name come from the Rufiji River, which runs through the District. It is about 180km south of Dar es Salaam city. Mkuranga District borders it to the North and Kibiti District, to the East by the Indian Ocean, to the South by Kilwa District (Lindi region), Liwale District lies on the south western side and to the West by the Morogoro Region. It is located 80 degrees south of the Equator, 380 40' East of the Greenwich and it is about 37 meters above sea level. In terms of international identification, the District lies between latitudes 60 and 80 south of the Equator and between longitudes 37030' and 400 east of Greenwich (URT, 2013). It is note worthy to say that there has been some climatic changes due to global climate change and rains can be early, extended and coupled with flooding or very dry seasons.

2.3.2 Climate of the area

The district receives rainfall ranging between 800mm and 1,000mm annually, falling between the months of November and January for about 60 days and March or sometimes April to May. The dry season occurs mostly in January to mid-March and June to October. Annual seasons can be divided into two rainy seasons; a heavy one in March, April to May (MAM) and a light one in October, November and December (OND), and two dry seasons, a major one in January and a minor one in July to August (URT, 2013).

Figure 2: Map of Rufiji District showing the project location in Utunge Village, Rufiji District (Source: Google Earth)

2.3.3 Temperature

The temperature ranges from 20^0c to 34^0C and the highest temperatures are experienced between September and October/November, just before the start of rainfall. The temperature gradually falls in February, and then remain relatively constant up to May. From May to August, the district experiences low temperatures (URT, 2013).

2.3.4 Hydrology

The Rufiji District is drained by the Rufiji River, which has a mean annual flow of approximately 8003/S. The river has a strong seasonal flow pattern, with flood peaks around April (Masika/Monsoon). The study area touches Ilu, one of the oxbow lakes created by the floods/river overflow creating two such lakes; Ilu and Weme. Ilu has water throughout the year and fishing activity is ongoing throughout the year. Its fertile lower plain is up to 20km wide where rice and maize are traditionally farmed. The river has developed a vast delta, partially covered by some 500km of mangrove swamps; the largest delta in East Africa (Duvail & Hamerlynck, 2007).

2.3.5 Vegetation

The vegetation of the project area is mainly tropical forests and grasslands covered by Miombo woodlands with wetland vegetation of Mbuga-wooded grassland and mbuga grasslands form vegetation. The Miombo woodlands are natural forests, which are found in the coastal areas of Mwambao, Mahege, Salale and Ruaruke wards and some parts of Mtunda, Chumbi and Umwe wards (URT, 2013).

2.3.6 Population characteristics

The population of Rufiji District has experienced significant growth and changes. According to Housing and Population Census (2012), the District has a population of 217,274 people where 104,851 are men and 112,423 are women. Nevertheless, growth rate indicates declining trend compared to 2002 Housing and Population census. The project area has a population of 1,371 and 282 households (URT, 2012a).

2.3.7 Socio-economic activities

The main economic activities in the study area include small-scale farming, which is done in flood plains, fishing, and wood harvesting particularly in mangrove forests, for fuel and timbering and crafts products (Mbiha et al., 2001). Most of the fishing activities and small-scale farming is carried out in the Rufiji River, the delta and some inland lakes formed by the flooding of Rufiji River (ibid). In the absence of large-scale farming, small holders dominate the farming practice. It is therefore, estimated that 95% of inhabitants of the district are farmers and fishermen. Most of the people in Rufiji have attained primary education. However, only 5% have attained secondary education. Very few (1%) have technical education, while 18% have no formal education (URT, 2013).

2.4 Description of the project area

2.4.1 Existing situation – general for agriculture

While Tanzania's overall economic growth trajectory has been in line with the national poverty reduction strategy, the agricultural sector has only grown at an annual rate of about 4 to 5% in the last 10-15 years (in 2010 it was 4.2%). The sector nevertheless is key to the country's growth and poverty reduction prospects, providing a quarter of national GDP and accounting for 75% of rural household income. The contribution of agriculture to GDP was 24.1% in 2010, compared to 24.6% in 2009. In the southern corridor (Rufiji Basin), agriculture contributes more than 75% of the rural household income, with crop production being more important than animal husbandry (URT, 2012b).

Overall maize production in Tanzania dominates (it accounts for 75% of all cereals produced in Tanzania) although the southern corridor is also an important rice producing area, especially the Rufiji's alluvial plains (Usangu flats, Kilombero Valley and lower Rufiji flood plain and delta). Approximately 95% of the 2.1 million hectares that are under crop production in the southern corridor are cultivated by small-holders using traditional rain-fed methods, primarily for subsistence farming. In general, agricultural yields are low, with grain and pulse yields averaging less than one and a half t/ha. Despite its huge potential there is currently very limited large scale irrigated farming in the southern corridor. Of the 7.5 million hectares of arable land, less than 2% is cultivated under irrigation (these being mainly public irrigation schemes for smallholder rice production and SAGGOT unitiatives) (URT, 2012b).

The low agricultural productivity mainly results from the limited use of quality inputs, including water, seeds and fertilizers, a lack of mechanization (often originating from a lack of access to credit), a lack of information on farming techniques and market intelligence, and low value addition/ agro- processing. Further constraints include low farm gate prices; high post-harvest losses; poor connectivity between agricultural

villages and markets (feeder roads); high disease incidence, pest prevalence; and prohibitive agrochemical costs (URT, 2012b).

2.4.2 Livestock keeping and fish farming in Rufiji District

Livestock accounts for about 30% of the total agricultural GDP in Tanzania and is traditionally a crucial component of people's livelihoods. Around 90% of all domestic livestocks are traditional indigenous species. While they may have limited potential for commercial meat and milk production, their characteristics represent adaptations to the environment. Livestock rearing is very important in the Rufiji Basin, with most crop-producing households also keeping livestock (primarily cattle). Only about 1% of agricultural households are considered to be 'livestock only' or 'pastoralist'. Livestock rearing is not evenly distributed within the basin, and tsetse fly infestation is partly responsible for restricting livestock rearing to the drier areas. The Sukuma, Maasai and Barbaig keep the largest cattle herds (URT, 2012b).

On the other hand, the traditional inhabitants of the Rufiji floodplains and delta (the Ndengereko and Nyangatwa) are widely engaged in fishery activities. In the district, fishing is ranked second to agriculture in economic importance. The fish caught (around 120tons annually) is consumed locally with very little surplus being sold to neighbouring regions, as it is considered an important supplemental protein source (URT, 2012b).

In view of the above, this project will involve investing in Agro-forest initially, and in the following phases diversify to fish farming and poultry production in 800 acres of land located in Nyandumbwi sub-village in Utunge Village, Rufiji District. Eventually, there will be appropriate processing plants eg. Cashew processing, fruit and vegetable products from the farm and out-growers as well as villagers. The project aims at facilitating the development of profitable agricultural businesses to achieve economies of scale, synergies and increased efficiency. [Anticipated development impact].

2.5 Procurement plan

2.5.1 Land acquisition to provide project site – (Final leg).

Survey Plans of the land and sample Letters of offer (see the appendix 3 and 4 for the land) have been obtained from the District Council after completing the land survey exercise. In keeping with the Government directive that all holders with letters of offer have to process the offer letters into Title Deeds, the company is working hard to achieve this process so that the land can be used economically. This process is expected to be finalised before December 31/2020.

2.5.2 Soil Testing and ESIA –

This was carried out by Mlingano Soil Testing in Tanga. Report of soil and water is attached as Appendix 5.

2.5.3 Preparation for Stakeholders Participation

Meetings between village leaders and, JanD Farms company experts to discuss the association's mission and vision and their involvement are ongoing. JanD Farms

management has arrangement with the Chinese Centre for Agriculture who have agreed to carry out model paddy farms at the JanD farms and train villagers for better yield. Pictures for some of the training sessions conducted in June 2018 are attached as Appendix 5. Costs for such training will be met by the Company and Chinese Centre in Morogoro.

2.5.4 Feasibility studies

Studies incorporating market (Demand and supply) of the products intended to be carried out, costs for (Capex and operational), Financial modelling, as well as Environmental and Social Impact Assessment (ESIA) will be done as and when a specific project is about to commence

2.5.5 Technical Feasibilities

This is an area requiring high level specialists/professionals like Agriculturalist, veterinary doctors, engineers, and technicians.

Work to be undertaken

1) Identify species of products and produce recommended by the soil experts as well as market reports
2) Recommend technical and professional methods of raising them in the project area
3) Define infra structure required to go in the CAPEX
4) Define consumables with costs
5) Define inputs and parameters for best yields
6) Define best practices
7) Produce drawings

Output

The consultants shall submit drawings and technical reports together with electronic copies and provide Source of information leading to the conclusions made. These conclusions will be followed up by financial modelling to enable the project to take off.

2.5.6 ToR to conduct Environmental and Social Impact Assessment (ESIA) of the proposed project

Introduction

Environmental Assessment Requirements

The Environmental Management Act of 2004 requires that ESIA be undertaken for all new projects that may cause adverse environmental and social impacts. Under the Environment Impact Assessment and Audit Regulations of 2005 the proposed project is categorized as an ESIA obligatory project for which a full ESIA is required.

The objectives of the ESIA are:

- To establish baseline information on both natural and built environment including socio-economic conditions of the proposed project area.
- To identify, predict and evaluate foreseeable impacts, both beneficial and adverse, of the proposed project.
- To develop mitigation measures that aim at eliminating or minimizing the potential negative impacts and promote positive ones; and
- To develop management clauses and monitoring aspects to be observed during project implementation.

This requirement clearly presents a broad challenge on what type of activity that is environmentally friendly need to be dealt with the farming project.

Outcome of the ESIA.

i. Identification of issues and concerns in order to find suitable remedies;

ii. Identification linkages among project components and the issues;

iii. Identification where project activities or elements interact with social and biophysical environment (direct impacts):

iv. Identification indirect impacts of the project on the environment;

v. Identification cumulative impacts that may be anticipated;

vi. Identification residual impacts if any;

vii. Prediction of probability, magnitude, distribution and timing of expected impacts:

viii. For certain project components it might be necessary to carry out assessment at two or more sites (alternatives) in order to come out with the best option; and

ix. Forecasting what will happen to the affected environmental components if the project is implemented as is or if the alternatives (e.g. sites and routes) are chosen.

i. Determination of which environmental components are mostly affected by the project or its alternatives;

ii. Listing of issues raised by the public and classify them according to the level and frequency of concern whenever possible;

iii. Listing regulatory standards, guidelines etc. that need to be met; and

iv. Ranking predicted impacts in order of priority for avoidance, mitigation, compensation and monitoring.

Upon completion of ESIA the management shall development a Plan to Manage Negative Impacts and develop a monitoring plan to:-

i. Determine appropriate measures to avoid or mitigate undesirable impacts;

ii. Assess and describe the anticipated effectiveness of proposed measures;

iii. Ascertain regulatory requirements and expected performance standards;

iv. Determine and assess methods to monitor impacts for prediction accuracy remedial measures for effectiveness;

v. Determine and assess methods to monitor for early warning of unexpected effects;

vi. Re-assess project plans, design and project management structure;

vii. Describe follow-up scheme and post-project action plan for achieving ESIA objectives; and

viii. Assess the level of financial commitment by the project proponent for the management and monitoring plan, and follow up activities. The consultant shall be guided by the cost-effectiveness principles in proposing amelioration measures. Estimation of costs of those measures shall be made. The assessment will provide a detailed plan to monitor the implementation of the mitigation measures and impacts of the project during construction and operation.

Further, the company shall review the institutional set-up - community, ward and District for implementation of the Management and Monitoring Plans recommended in the environmental assessment.

The assessment shall result into an EIS focusing on findings of the assessment, conclusions and recommended actions, supported by summaries of data collected etc. This shall be a concise document limited to significant environmental issues. The report format will be as per NEMC EIA guidelines.

3.0 PRODUCTION

3.1 Farm Partitioning

The farm has been provisionally partitioned depending on soil type. These partitions are as follows:

1) 200 acres of paddy

2)140 acres of Cashew

3) 80 acres of sesame

4) 20 acres of sunflower

5) 5.0 acres of green house

6) 5.0 acres for Orchard

7) Millet, sorghum –rotational crops can take several acreages

8) Hortculture

9) At least 50 metres along the river/lake bank of various trees, mainly teak trees and other varieties as may be advised by the forestry department or NEMK and other experts. This activity is important because a lot of trees have been cut and if urgent measures are not taken, the area is under a big threat of being devastated. During the rains it floods and roads are not passable and during the hot season it is too hot.

10) The remaining land will contain infrastructure to support the agricultural sector including warehouses, staff housing and factories or processing units.

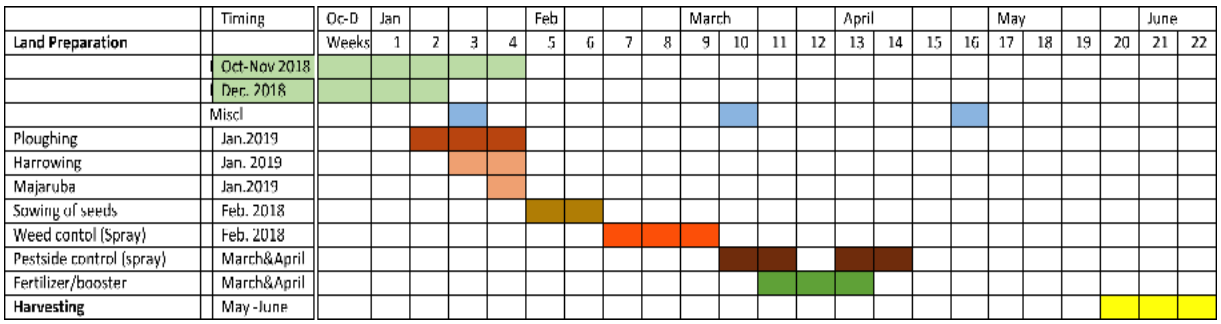
3.2 Estimated outputs

3.2.1 Paddy

Calculations for Paddy inputs and output based on rain fed production are shown in appendices If irrigation infrastructure is in place, the farm can grow paddy at least twice a year and can be assured of a bumper crop that will not be affected by the vagaries of weather.

Paddy picture:

Chart 1 -: Program for rain fed rice



Estimated Production cost of Paddy

	Cost of Planting Paddy							
								Timing
1	**Land Preparation**		cost /acre			Cumulative	%	
		Bush clearir	180,000	100	18,000,000			Oct-Nov 2019
		Uprooting r	270,000	100	27,000,000			Dec. 2019
		Miscl			1,000,000			
2	Ploughing		50,000	100	5,000,000			Jan.2019
3	Harrowing		30,000	100	3,000,000			Jan. 2019
4	Majaruba		30,000	100	3,000,000	57,000,000	54	Jan.2019
5	Sowing of seeds		50,000	100	5,000,000			Feb. 2020
6	Weed contol (Spray)		60,000	100	6,000,000			Feb. 2020
7	Pestside control (spray)		40,000	100	4,000,000			March&April
8	Fertilizer/booster		60,000	100	6,000,000	21,000,000	20	March&April
9	**Harvesting**		60,000	100	6,000,000	6,000,000	6	May -June
	Inputs cost							
1	Weed control (Romin Goldmi.200/5acre		70,000	20.0	1,400,000			
2	Booster		5,000	50	250,000			
3	Urea		63,000	100	6,300,000			
	Pestside control (Dudu All)		28,000	9.00	252,000			
4	Seeds		3,000	1,200	3,600,000	11,802,000	11	
		Sub-total				95,802,000		
	Direct Overheads							
	Security Guards -vermin control eg.wild pigs &bird		8	150,000	1,200,000			
	Scare crows (maequin)		6	30,000	180,000			
	Transportation from the farm				6,000,000			
	Misc. in. demos				1,500,000			
		Sub-total				8,880,000	8	
						104,682,000	100	

NB. Planting the entire 100 acres will depend on the weather conditions until irrigation infrastructure is put in place.

3.2.2 Cashew

During farm partitioning, 140 acres were set aside for cashew nuts. Development is in phases starting with 30 acres, followed by another 30 and finally 80 acres making it a total of 140 acres. The company is exploiting the possibility of putting in irrigation infrastructure whose feasibility is shown as Appendix 7. The total cost of this infra-structure which will also cater for cashew irrigation is estimated to be US $ 219,000 (= tsh. 503,700,000).

3.2.3 Rainfall and availability water permits and/or permission for boreholes.

The information and data in this general planning document was based on assumptions and data provided by the District Office and is considered sufficient for general planning. Consideration of water requirement to supplement rainfall and securing water rights is dependent on the amount of water to be consumed.

a) Water Requirement and Irrigation Scheduling for Cashew

The crop water requirement is assumed as 3.6 mm/day and the irrigation water requirement is 4.0 mm/day. The irrigation scheduling (irrigation intervals) and the application time and depth, will be determined during the irrigation operation based on the climate and the plant stage of growth.

b) The Irrigation Method

The irrigation method is a permanent irrigation system. Two irrigation methods have been considered:

- **i.** Drip irrigation, and
- **ii.** Sprayers (mini sprinklers) irrigation

Sprayers irrigation system is selected because of the possibility to cover and wet relatively large area of 25 – 35 % while when using drip irrigation, the wetted area is smaller. Also, the sprayers are less sensitive to clogging and require relatively simpler maintenance.

c) The Irrigation System

i) One sprayer for every two trees in the row of trees will be installed and sprayers lateral for every row of trees. The spacing of sprayers is therefore 16 m along lateral and 8 m between laterals. The sprayer is connected to the lateral by micro-tube that allows flexibility in the location of the sprayer in relation to the tree. This is shown in Fig 1. Below.

ii) The lateral is of 80 m length with 5 sprayers along it.

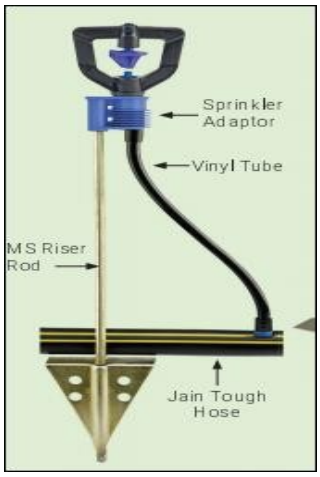
There are 16 valves in the 40ha plot, each serves an irrigation unit of 20 laterals to each side of the manifold of length of 160 m so that the irrigation unit is of a size of 160 m x 2 x 80 m = 25,600 m2 = 2.56 ha.

Four valve lines run across the plot, each serves 4 valves

There are 4 shifts of the irrigation operation. In each shift, only one valve on the valve line is operating. All the valve lines operate at the same time with one valve on each valve line. Consequently, the discharge of the valve line is minimal, which is the discharge of one valve.

The main pipe supplies the 4 valve lines. The pipe from the pump is connected in the middle of the main pipe so that the discharge in the main pipe is divided into its two sections, allowing most economic pipe size.

Fig 1: Typical sprayer for the C/ Nuts Project



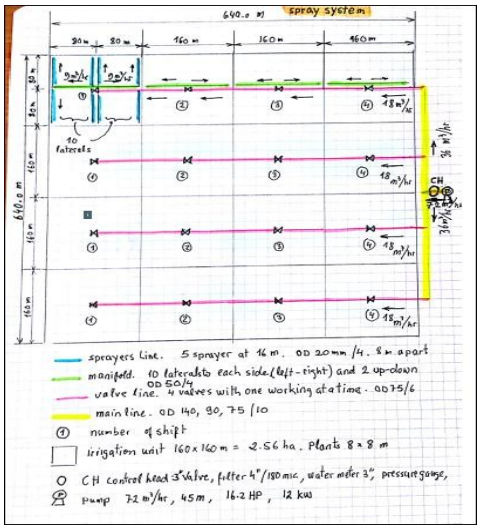


Fig 2: Layout of the Irrigation System

Irrigation system for 140 Acres Cashew Nuts

- Area size 140 acres (56ha) (based on Google Earth map)
- Trees spacing: between rows – 10 m, between trees 10 m
- Number of trees per ha – 100 and therefore around 5000 trees
- Peak water requirement – 280 liters per day per tree (gross)
- Water requirement per unit area – 2.8 mm, 28 m3/ha
- Water requirement for 56 ha – 1570 m3/day
- Daily irrigation hours – 20
- System discharge – 80 m3/hr
- Irrigation cycle – once a day. (other interval are possible)
- Irrigation volume – 28 m3/ha
- Number of shifts – 5

- Operating time of shift – 4 hours
- Number of plots – 10
- Number of plots per shift – 2
- Average size of plot – 56 ha
- Discharge per shift (into valve) – 40 m3/hr
- Application rate – 0.7 mm/hr (checking: depth of application:4 x 0.7 – 2.8 mm)
- Total number of sprinklers - 5600

Irrigation practice

iii. Irrigation method is by compensated micro-sprinkler model 2002 70 lph

iv. Sprinklers spacing is one sprinkler per tree – 10 by 10 m

v. The sprinkler position is 1.0 m away from the tree trunk (minimize the effect of the trunk on water distribution)

vi. The sprinkler is installed on a rod 30 cm above ground

vii. Plot valve is a double valve for 2 adjacent plots, one plot irrigated at a time.

viii. The sprinkler line is PE pipe 20/4 mm diameter

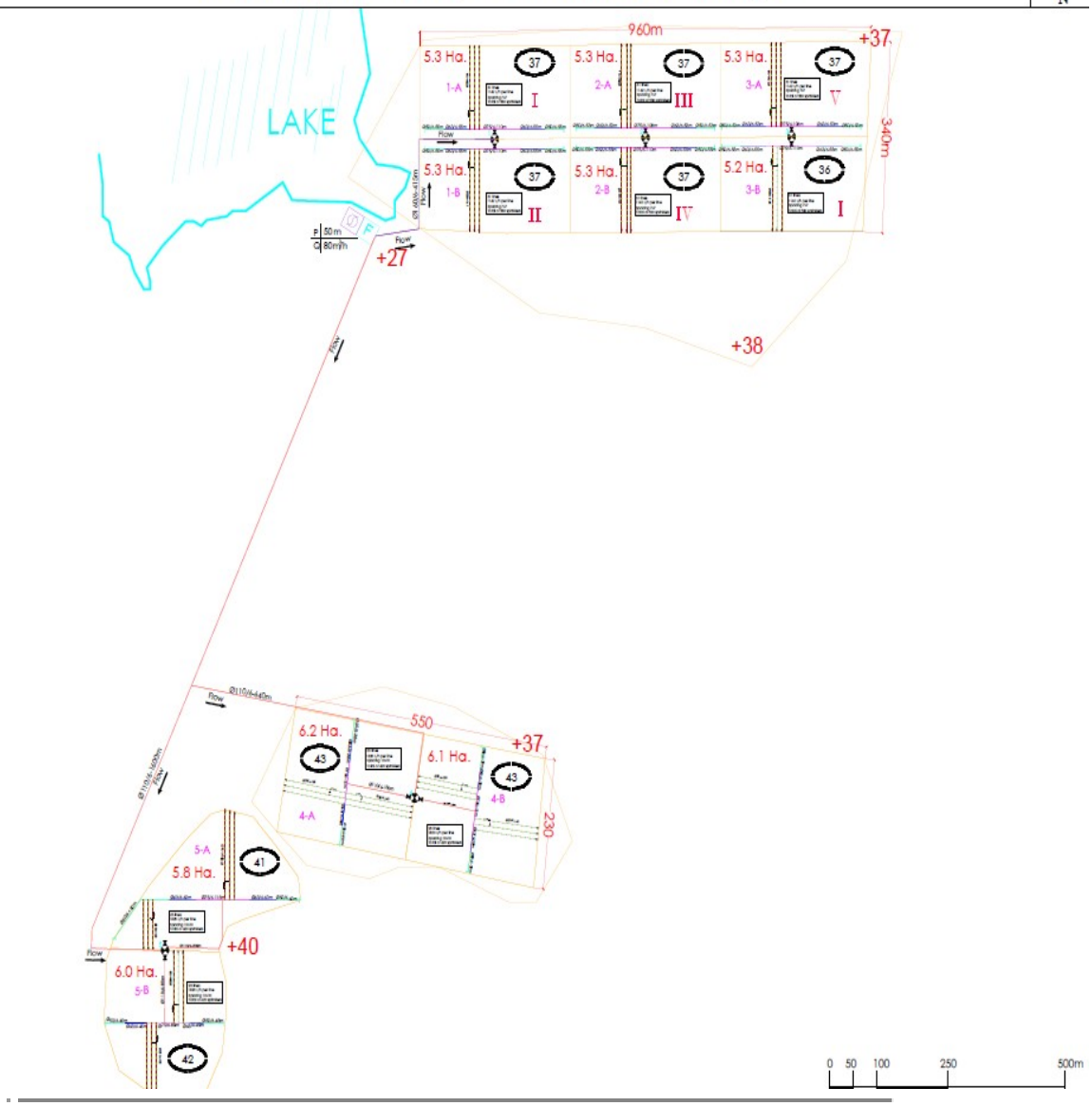
ix. The manifold is composed of PVC pipe of diameters 50 – 63 - 75

Water source

1. Pumping station is installed at the lake bank, pumping directly from the lake. (Too much fuel?)
2. The pump discharge is 80 m3/hr and the pressure is 45 m
3. The pump capacity is 18 HP = 13.4 KW
4. Filter of 4” is installed after the pump outlet
5. Fertilizers injector with two fertilizers tanks of 500 liters each are installed downstream the filter

1.

Jand farms map-Overall w\o image



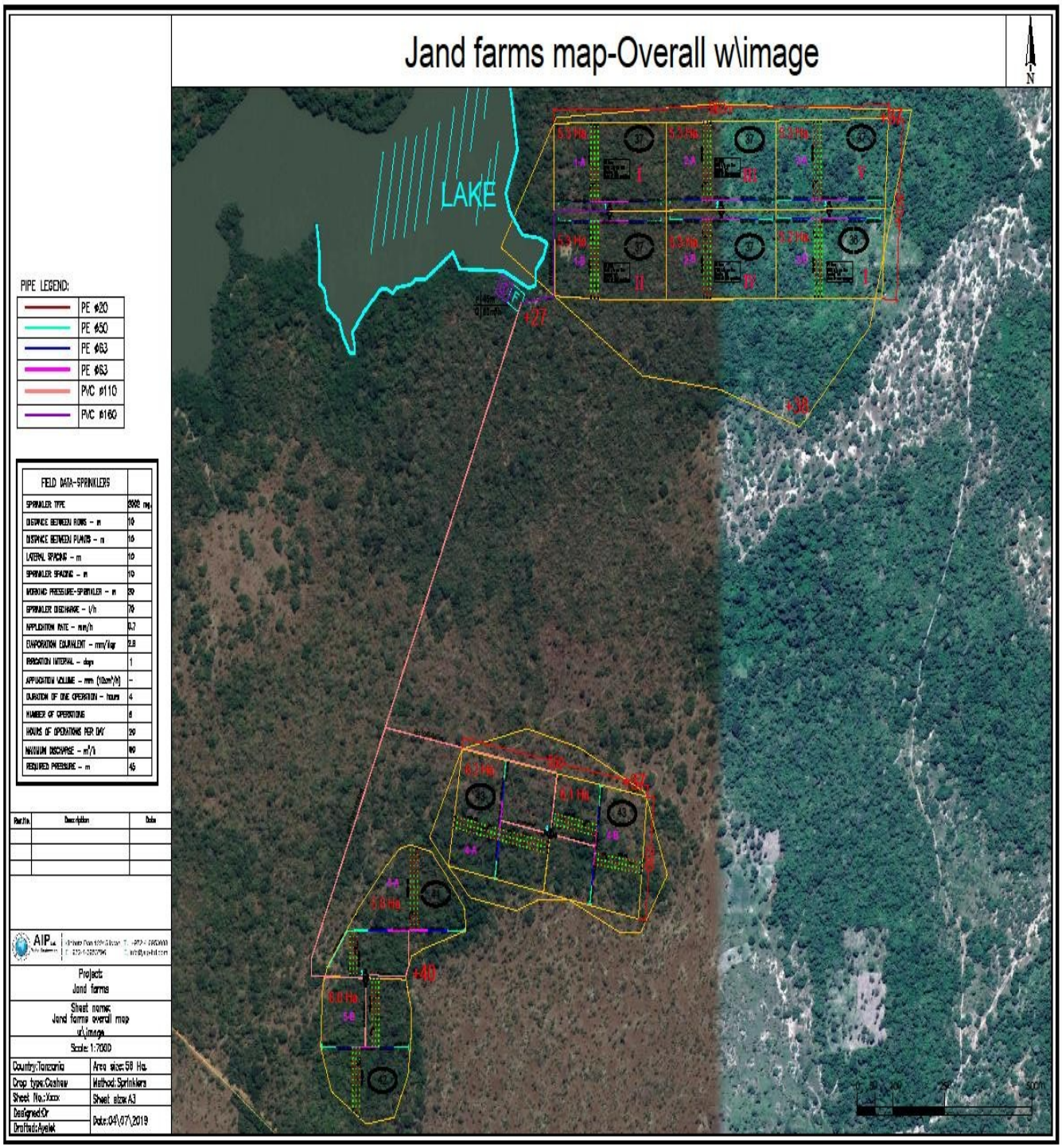
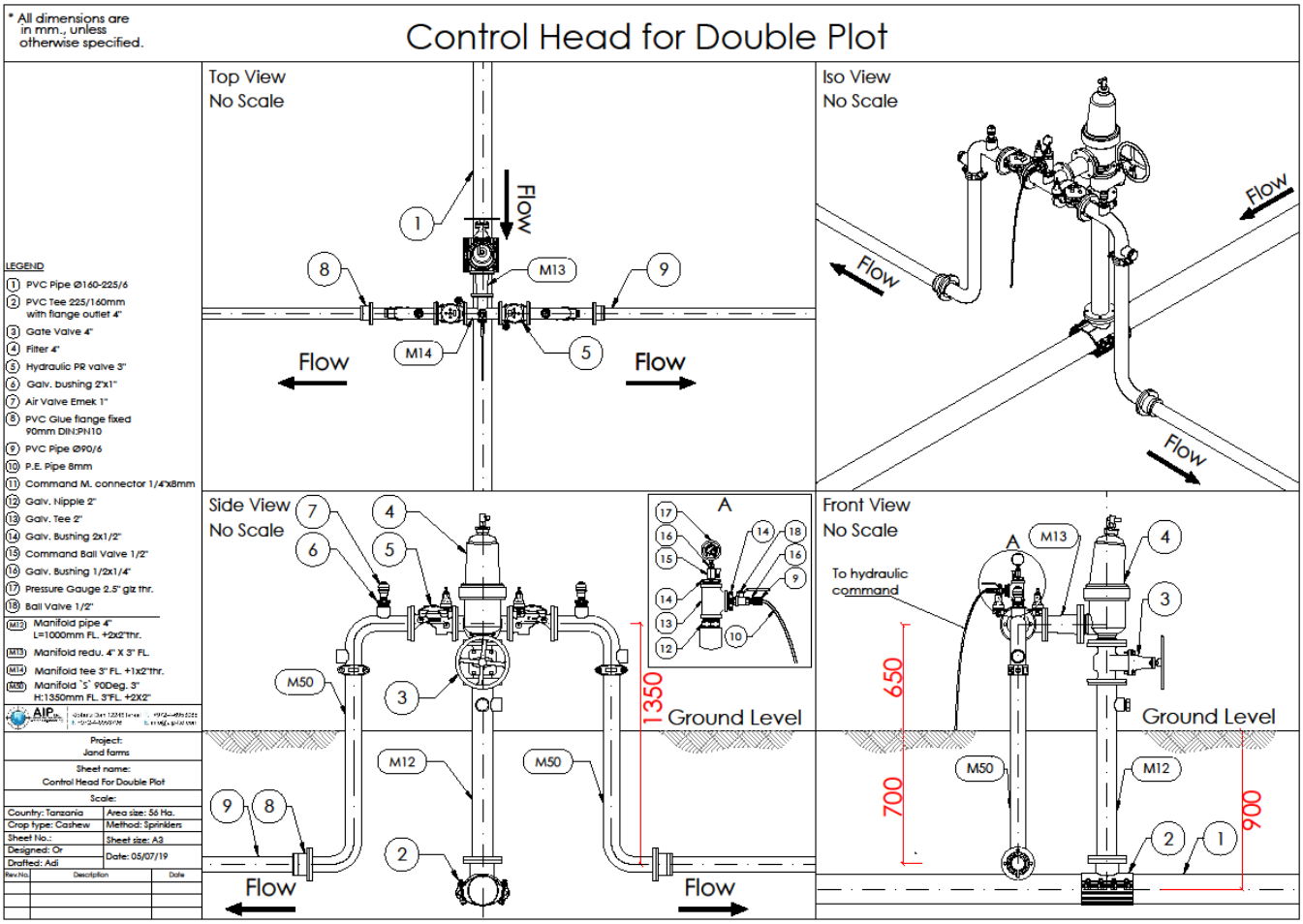


Fig 5. Over all watering image

Fig 6. Plot “Head” x 3



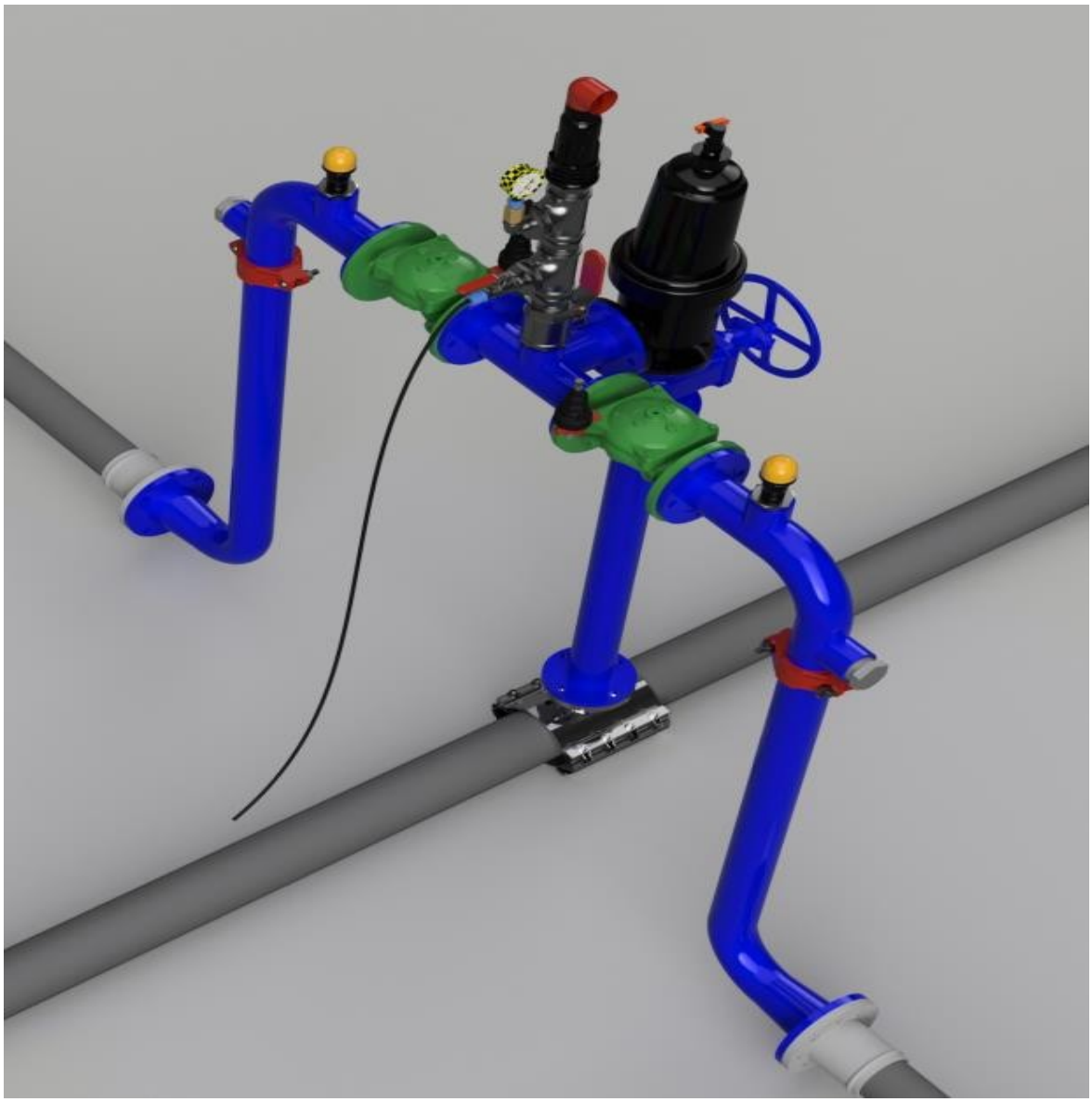
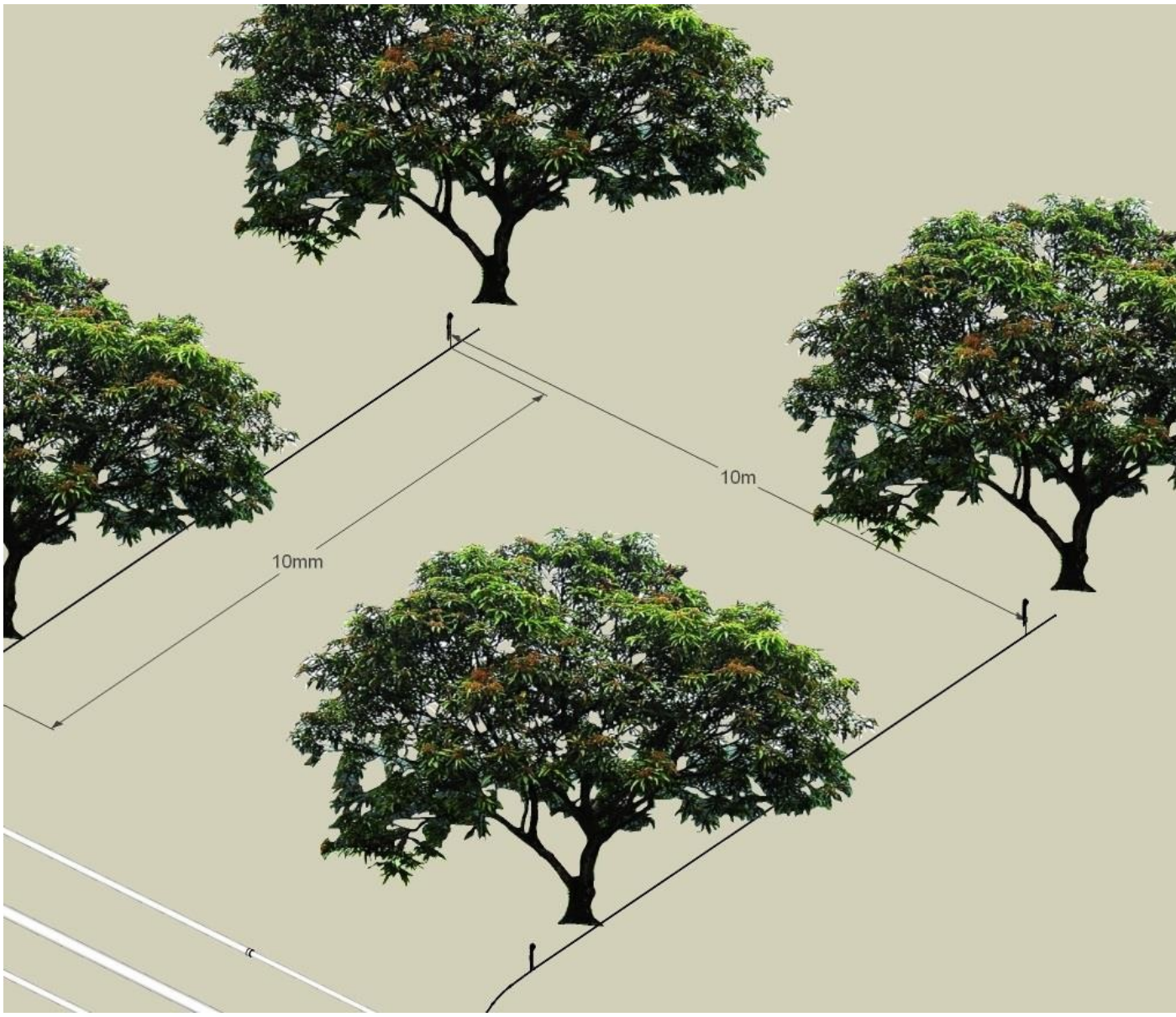
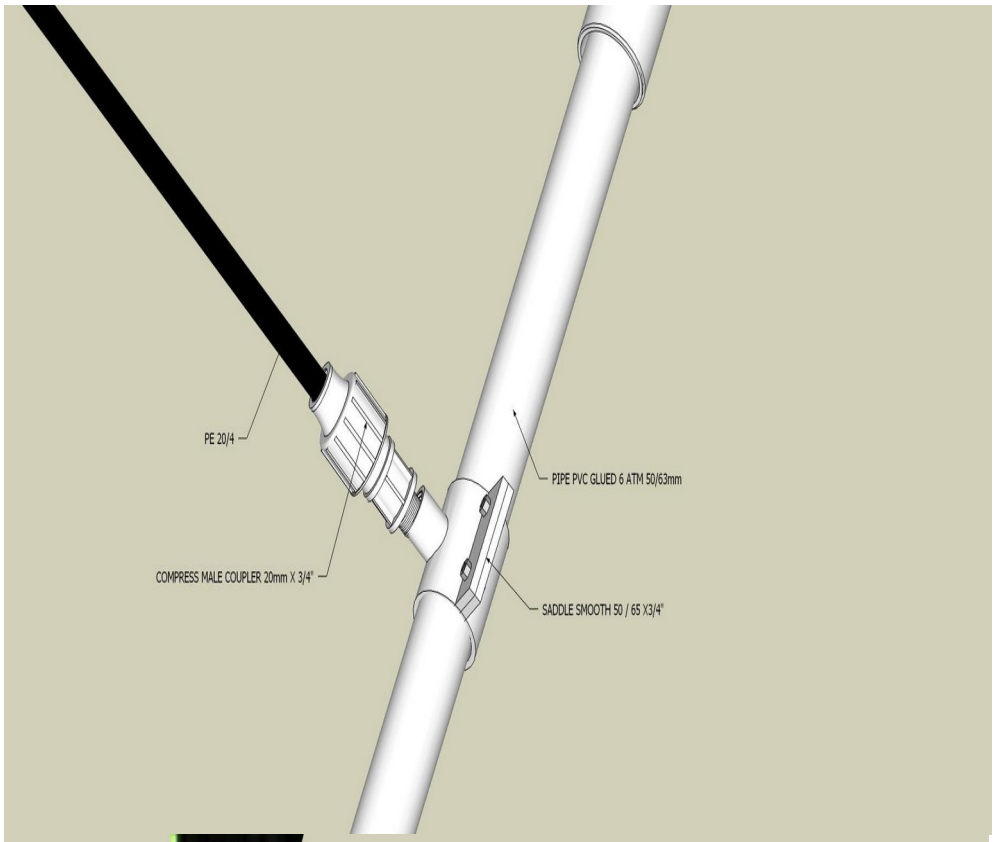


Fig 7

Fig 8. Distances 10m X:10 m



Exit of sprinklers lateral from 50m distribution pipe:


PE 20/4
PIPE PVC GLUED 6 ATM 50/63mm
COMPRESS MALE COUPLER 20mm X 3/4"
SADDLE SMOOTH 50 / 65 X3/4"

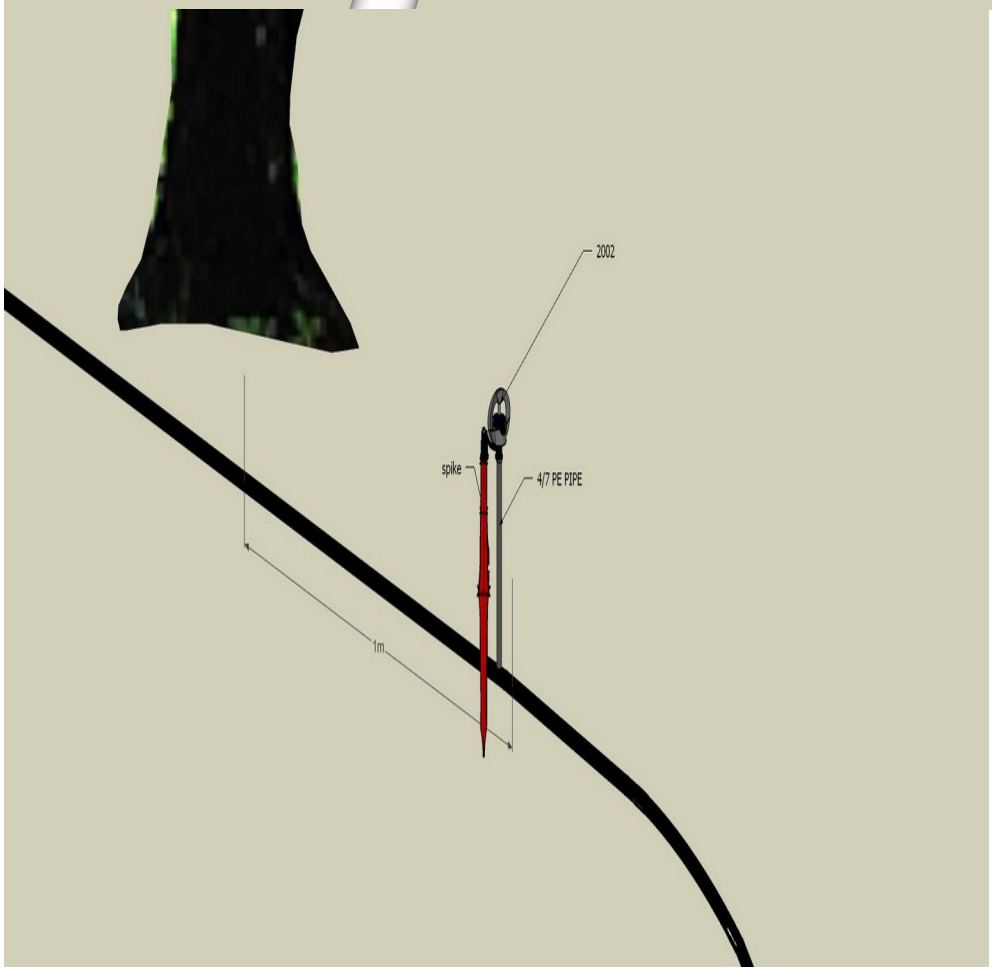
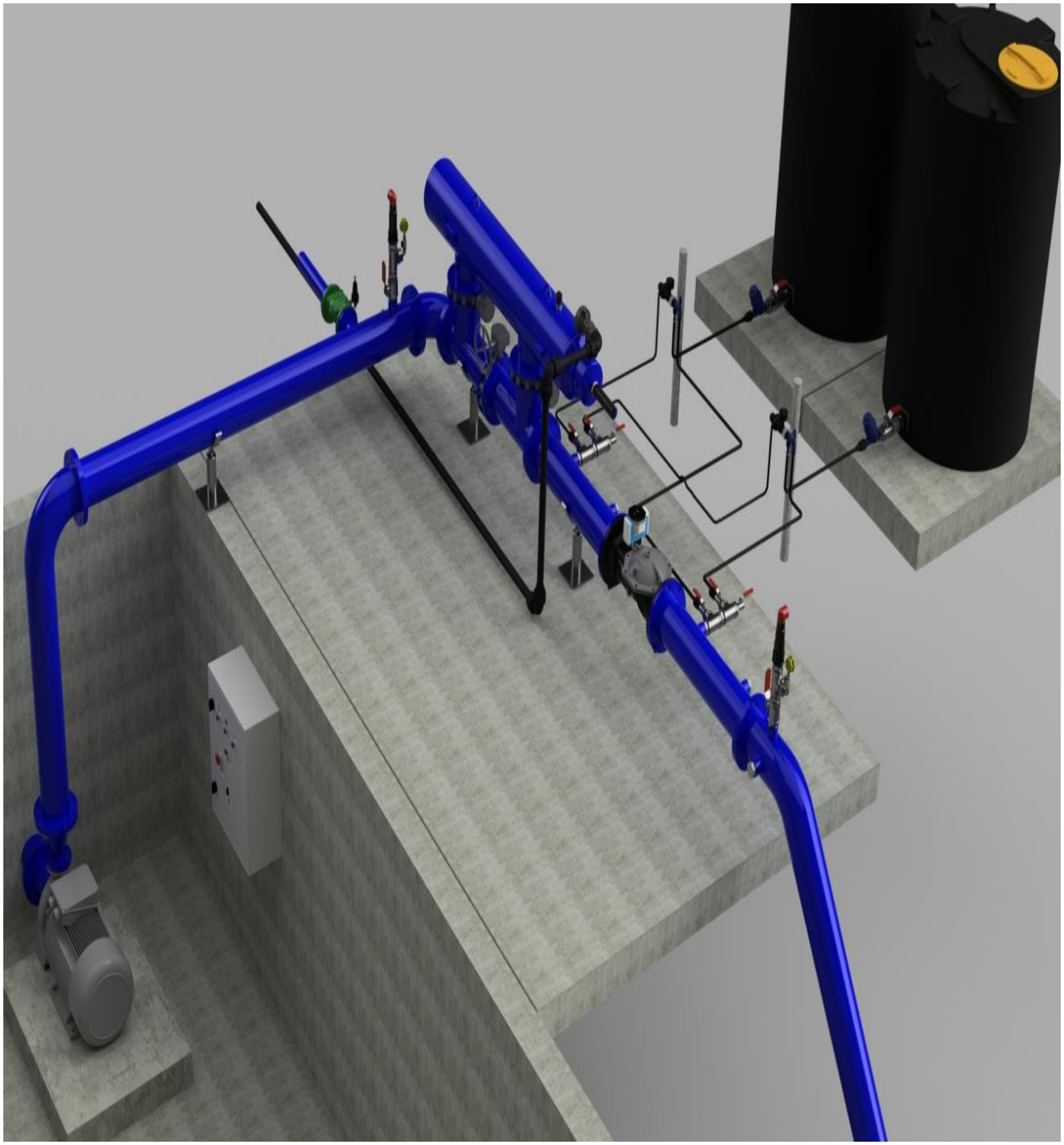
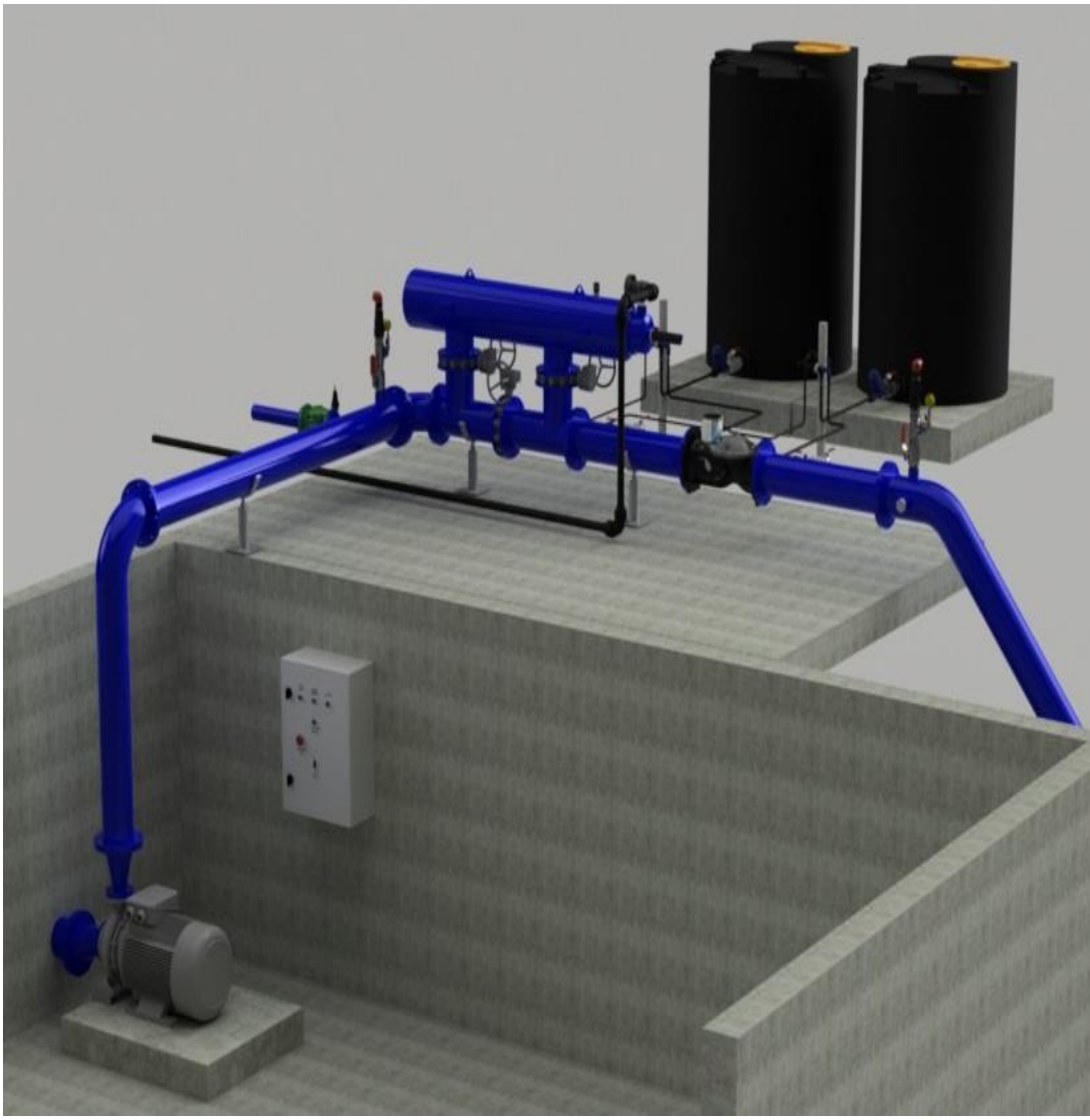
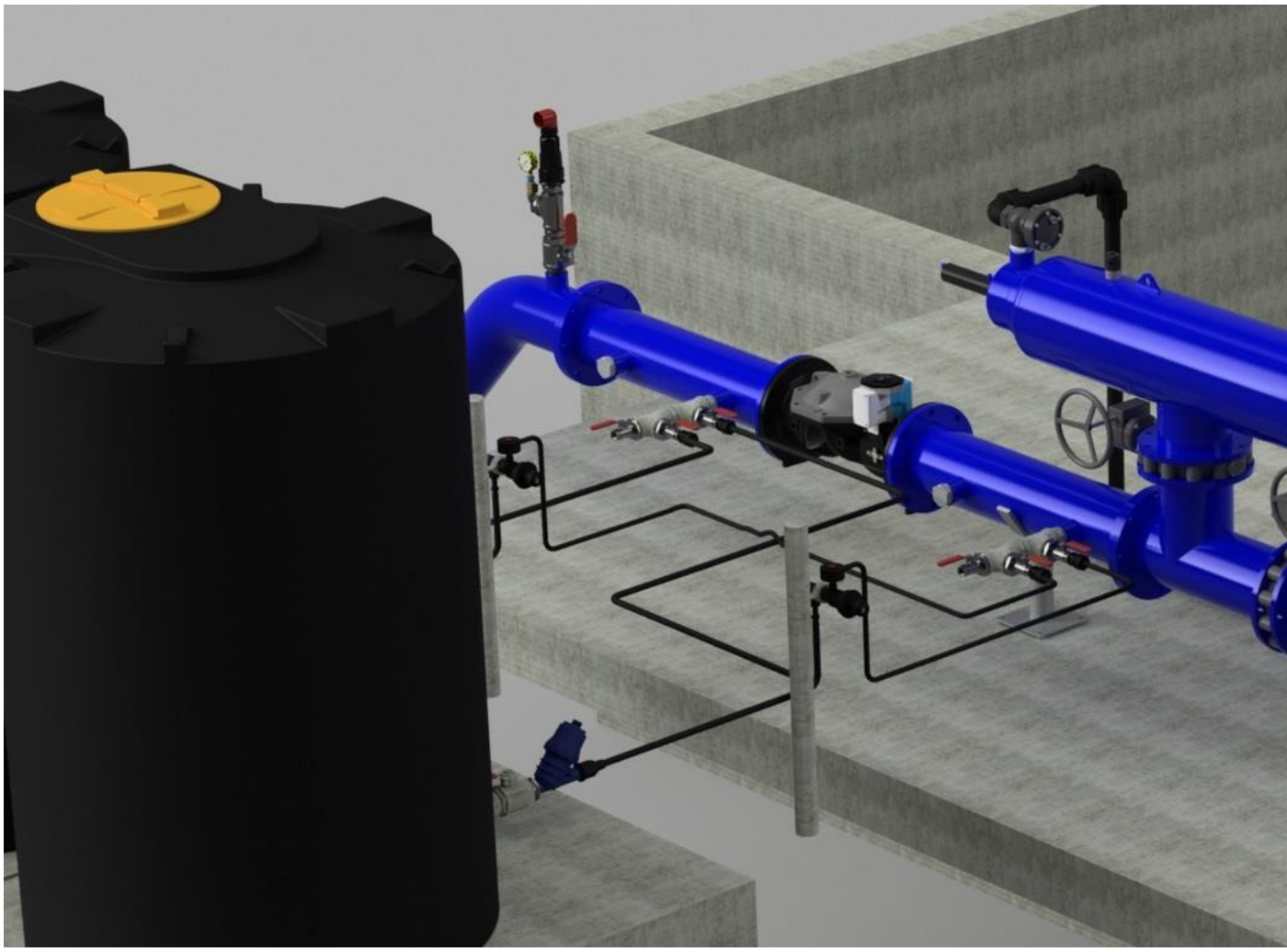
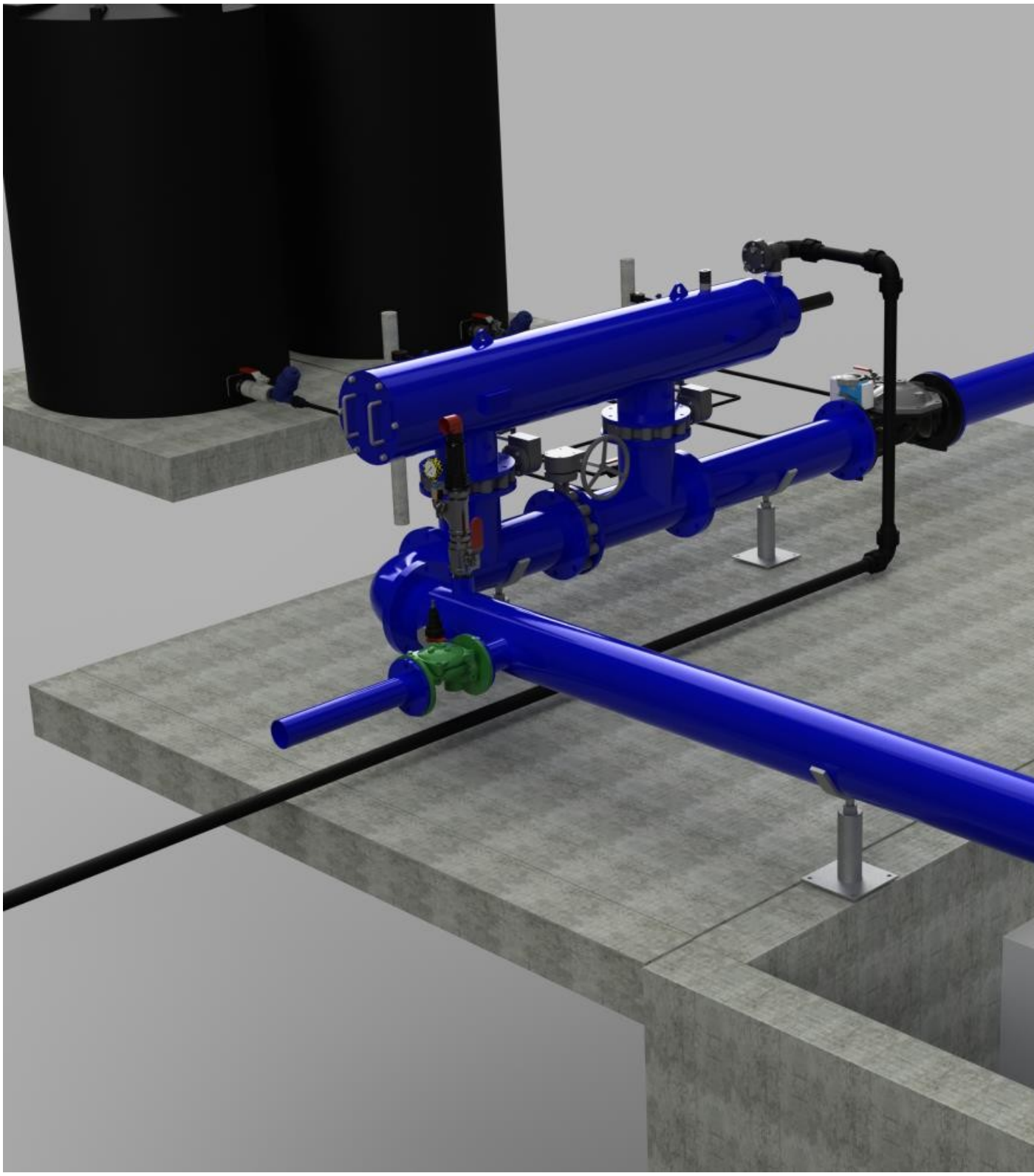

2002
spike
4/7 PE PIPE
1m

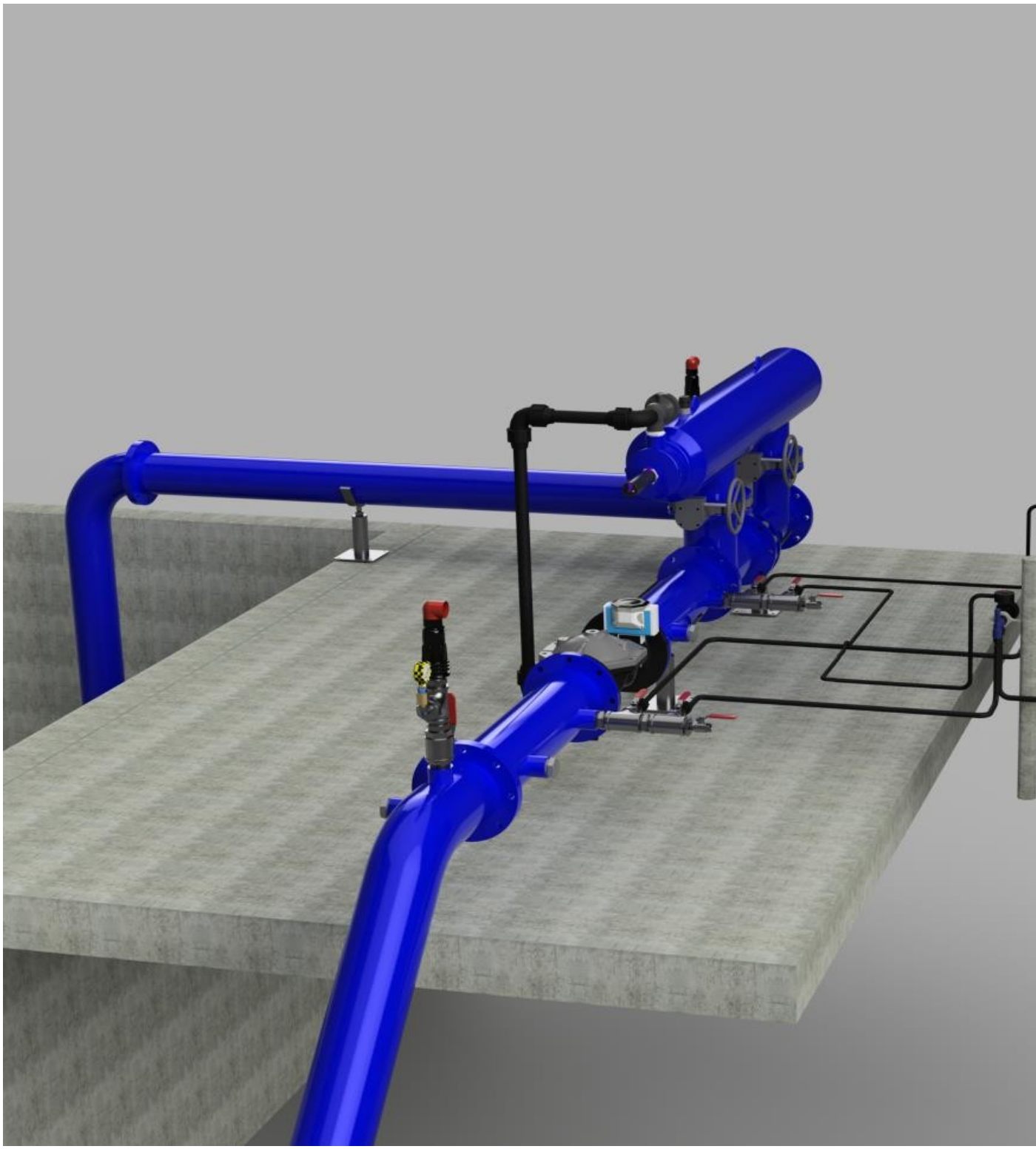
Fig. 10 Pumping station inclusive filtration and Fertigation:











ESIMATED CASHEW YEALD

Year		acrea	trees/a	total trees				Yeald					KG			Exc. Rate	US $
2019	27	27	30	810	-	-	-	-					-				
7070	13	40	30	1,700	-	-	-	-					-			7,300	-
2021	20	60	30	1,800	10	-	-	10				10	8,100	3,300	26,730,000	2,300	11,621.74
2022	20	80	30	2,400	10	10	-	20	20			50	60,000	3,500	210,000,000	2,350	89,361.70
2023	20	100	30	3,000	10	10	10	30	20	20		60	108,000	4,000	432,000,000	2,350	183,829.79
2024			30	3,000	10	10	10	30	20	20	20	90	216,000	4,500	972,000,000	2,350	413,617.02
2025			30	3,000	10	10	10	30	20	20	20	90	270,000	4,500	1,215,000,000	2,350	517,021.28

3.2.4 Sesame

Estimated sesame yield is 500kg per acre. It is expect to get 50tones per year and most likely this will be exported. In the initial years, this may be sold locally where it fetches 3,500,000 shs per tone. The trial yields were good. See picture for the crop.

(Sesame Picture)

Sim Sim Cost

						2020		2021		2022		2023		2024
						Year 1		Year 2		Year 3		Year 4		Year5
1	**Land Preparation**		cost /acre											
		Tree Felling	-	-	-									
		Clearing the lar	-	-	-									
		Miscl												
2	Ploughing		50,000	20	1,000,000									
	Harrowing		30,000	20	600,000									
	Preparation for plants		9,000	20	180,000									
	Kung fu Spray before sowing		18,000	20	360,000									
						2,140,000								
3	**Labour**													
	Sowing of seeds		9,000	20	180,000									
	Weed contol (Spray)		40,000	20	800,000									
	Pestside control (Kung fu spray)		18,000	20	360,000									
	Fertilizer/ manure		30,000	20	600,000									
						1,940,000								
4	**Inputs cost**													
	Weed control (/5acre		70,000	20	1,400,000									
	Booster		500,000		500,000									
	DM Wigles		18,000	20	360,000									
	Seeds		12,000	20	240,000									
						2,500,000								
			Total Sim sim cost			**6,580,000**	40	**13,160,000**	60	**19,740,000**	80	**26,320,000**	100	**32,900,000**

Kuvuna		50,000	20	1,000,000									
kupiga		50,000	20	1,000,000									
Packing		30,000	20	600,000	2,600,000	40	5,200,000	60	7,800,000	80	10,400,000	100	13,000,000
Total cost					**9,180,000**		**18,360,000**		**27,540,000**		**36,720,000**		**45,900,000**
Output per kg		350	20	7000			14000		21000		28000		35000
Price /kg				3000									
				21,000,000	21,000,000		42,000,000		63,000,000		84,000,000		105,000,000

4.0 MARKETING

4.1 Introduction

As a believer in Operations management, it is the Market that drives Production. In other words, demand is linked to market and production is linked to supply. That said, the amount of produce, paddy, cashew nuts, simsim, horticulture, etc. that is produced must be supplied to the right market at the right time and right price. The remaining amount should be processed in order to add value or to preserve what would otherwise be a waste if it has not reached the fresh markets.

4.2 Target Markets

Target markets are varied depending on the Product and season. A back of the envelop market survey shows the following indicative patterns: -

a) Paddy – and finally rice is for local markets and other markets especially East African and SADC countries

b) Vegetables including tomatoes and Green House commodities are for the local market, especially the Stiegel's Gauge, in Rufiji, Dar es Salaam, Mtwara and Lindi in the initial years. Later for export. Off-season vegetables are in very high demand and therefore fetching very good prices in the local markets; for example, in Rufiji one medium sized carrot is sold at between 500 - 1000 shillings.

c) Sesame for export

d) Sunflower, which is a good source of high quality nectar for bees will also be for local market. In future, it will be used for cooking oil extraction and the by-products for animal feeds.

e) Honey for export and local market

In order to compile accurate expectations, a comprehensive market study will have to be carried out as shown in 4.3 below.

4.3 ToR to conduct market research, product certification related activities Market research studies

This is one of the most important sections of the feasibility study since it is intended to examine the marketability of the products to be produced.

Work to be undertaken includes:

1) Obtaining a list of recommended products

2) Collecting demand and supply data of all the recommended products within the region, other regions in Tanzania and external markets

3) Collecting demand and supply information on fish and poultry

4) Computing existing gaps of each product

5) Establishing pricing of each after taking into consideration product quality

6) Establishing target market segments

7) Establishing cost of promotion if at all

8) Extrapolating demand and supply of each product including paddy, cashewnuts, sesame, horticulture outputs, fish, poultry, by-product after taking due cognisance of developments elsewhere

9) Assisting in pointing out possibilities for future

10) Making appropriate recommendations

Output

The consultants shall submit hard and electronic copies of Market report and provide Source of information leading to the conclusions made.

Notwith standing that these detailed, studies have not been undertaken, assumptions used in this document are based on current figures limited to Rufiji and Dar es Salaam markets.

5.0 FINANCING

5.1 Introduction

Required funds to carry out intensive development is high thus. activities involved cannot be carried out in one financial year. Development has been divided in phases and in modular projects which may take 5 years to be fully implemented. These phases are not mutually exclusive and a phase can start while the previous phase is still on going and therefore forming continuous processes, some of which feeds into each other. These activities are describes here under:

1. Farm Valuation to establish exact inputs of each shareholder
2. Feasibility studies
3. Professional partitioning by projects/activities to be carried out
4. Infra-structure development
5. Implementation of proposed projects

5.1.1 Farm Valuation to establish exact inputs of each shareholder

This process has been completed and formed the share capital of each shareholder. During the company registration some members who were not in the country and/or had not obtained National ID's made arrangements to have their shares held in Trust by the three Shareholders who were present in the country and had their National ID's in place. This exercise was completed and forms part of what is shown as investment in place. The cost is 318,558,700mil. and is shown in Schedule 8.

5.1.2 Feasibility studies and Financial modelling

Financial modelling and detailed business plan development:

Financial Modelling-

It is important to forecast a picture of the project's future financial performance based on the foreseen performance of the activities to be undertaken. Financial Modelling includes preparations of detailed project specific models in agro-forest, horticulture, greenhouses, poultry (broiler, eggs, and local chicken), fish growing, and crops to be grown for feeding the project core business lines as well as vegetables, fruits and any cash crops for the community. The mathematical models of different aspects of operational combinations based on different assumptions and variables will be required in making decisions on: -

- Identification of Strategic and Business Plans through finding strengths and weaknesses
- Identifying which operations, the company should make investment for better returns i.e. comparative analysis
- Need of additional funds (debt or equity) or not
- How a business will react to different financial situations or market conditions
- Analysing and defining the risk level

Specifically, the consultant shall produce

1. Income Statement:

a) Financial Modelling –Revenues Projections -Revenues are a fundamental driver

of economic performance. It will be important to expect a logical revenue model that reflects accurately the type and amounts of revenue flows from each project crop and by ensuring that at least a minimum of three different multiple revenue scenarios for sensitivity analysis of profitability are tested.

b) Financial Modelling – Operating expenses

c) Financial Modelling – Interest expense (or Net interest expense):

The processes will be carried out for every crop or product to be worked on for every year

2. Balance Sheet: Line Item Drivers (Assets)

a) Cash and Cash Equivalents: Linked to cash from Cash Flow Statement

b) Accounts Receivable (Part of Working Capital Schedule)

c) Inventories (Part of Working Capital Schedule

d) Current Liabilities Projections

Outputs

The consultants shall submit a report showing assumptions used in the models, sources of materials, units of measure and likely changes for example if it is inflationary indexed etc. The Consultant shall also make appropriate copies for review as will be deemed necessary.

Notwithstanding the need to have detailed feasibilities for each product, the JanD Farms management, and after consultations with an external consultant have decided to embark on soil and water tests feasibilities for paddy, cashew nuts, sesame, green house vegetables and orchards.

It is also important, to always keep in mind that this process includes natural resources management as well local community's development so that they can join in the production process either as out-growers or simply suppliers of various production means.

There will be several feasibilities depending on what is being carried out. Thee will include but not limited to overview feasibility done by Green Arrava at a Front end cost of US $ 50,000.

5.1.3 The procurement cost showing various feasibilities to be carried out is shown as Appendices 8. This will be supplemented by procurement for machines and infrastructure required for value addition. A majority of these will take place in 2013 and 2014

5.1.4 Implementation of proposed projects

Implementation of the Projects will start after a detailed project feasibility is carried out and completed. Financing will be dependent on the size of the project. Meeting financial demands can be through Bank loans, shareholders call up on shares and/or Joint Ventures.

5.1.5 Fund Mobilisation:

Shareholders to put in money after valuation of what each farm owner has put on his land.

5.1,6 CAPEX in preparation for operationalization of the project.

The feasibility studies will show the plan of action. It is important to note that the farms under discussion are very close to the mainroad to Utete, (the District Headquarters of Rufiji) which is also connected to national grid for power generation. Currently, villagers are mobilising funds to supplement what is provided for under government rural electrification to ensure that public facilities such as dispensaries, schools have been connected with power. Other infrastructural support will be dependent on the market study. Business plan for the overall project will be a formal statement of business goals and plans/strategies for attaining them. The Plan will give the project perspectives of between 5 to 10 years.

5.1.7 Working Capital Arrangements

At a properly convened Board Meeting of JanD Properties Limited that hitherto owned a big chunk of JanD Farms, held on April 2019, it was generally agreed that the Overdraft facility that had been arranged by JanD Properties be reconciled and be transferred to JanD Farms. The Overdraft of Tshs. 200,000,000 and incomes derived from proceeds of various stocks of paddy, sim sim, timber and livestock in the farm will form the working capital of the farm. Other assets as valued will go into each member's account and additional shares will be called up in 2020 as may be determined by the Interim Board. The Overdraft agreement which is fully secured by cash deposit of 250,000,000 is attached as Appendix 8.

5.2 Summary of required Funds

JanD Farms (T) Limited is looking at implementing this project in a phased approach. The company will spend about US $814,307 (Tsh.1,872,905,200) to meet the Capital Expenditure (CAPEX). Planned Income to be generated over the same period is US $1,404,873(Tsh.3,231,207,585). Operational Expenditure (OPEX) over the plan period is US $1,236,940(Tshs,2,844,962,298) inclusive of depreciation of US $229,292(Tsh.527,372,062). leaving a profit of Tshs.US $167,933(Tsh. 356,245,287). The rate of exchange used in these projections is US$1=Tzs. 2,300 (See Appendix 9).

5.3. Financial projections used in this study are attached as schedule 9.1 to 9.7 of this chapter.

These include the summary schedules:

(i) Projected Summary of Income and Expenditure 9.1
(ii) Projected Balance Sheet 9.2
(iii) Projected Cash Flows 9.3
(iv) Projected Assets schedules 9.4
(v) Assets details 9.5
(vi) Taxation Schedule 9.6
(vii) Statement of change in Equity over the period 9.7

6.0 BENEFITS OF THE PROJECT

The proposed project will: -

(i) expand investment in agribusiness leading to income growth among smallholders. More than two hundred small-holder farmers and local inhabitants will be mobilised to engage in this project in one way or another. The programme includes recruitment of small holders, setting up model farms for training using specific approach called “Tangible Goals Approach” See appendix 10

ii) generate employment across agribusiness value chains in the Southern Corridor and therefore, boost socio-economic development of the area. Appendix shows that the company will employ an average of between 32 and 60 employees excluding casuals used during harvesting. Their income is estimated to be between Tsh. 142mil to 301mil per year from 2020 to 2024.

iii) expand tax base for the government. Taxes from employment over the five year period is estimated at Tsh 175mil while Cooperate taxes for the period is about Tsh 154mil.

iv) create a market for those in out-growers agreements or those selling directly to the production facilities

v) avail storage and other facilities/warehouses for their produce. Warehousing and storage is a big problem in rural areas which leads to huge post harvest losses. Since the company will build warehousing facilities, it will provide relief to the people in the area including outgrowers.

vi) provide community education (not necessarily accredited) but knowledge and practical based education in different areas. Testimony shows that company has already used the Chinese Agricultural center in Morogoro to teach how to plant rice and get good yeald. See picture for the ceremony.

vii) open up an investment opportunity in production of fish and poultry in Rufiji District which up to this moment has no large scale production of fish and poultry.

viii) Create forward and backward linkages between livestock keeping and agricultural production. Poultry rabbits will produce organic manure which will be utilised in organic farming as well as fish feed and vice versa. For example, fish remains will be processed as an input in the chicken feeds and rabbit urine as organic insecticide.

ix) specifically, will apply BOKASHI decomposition technology[2] to produce chicken feed and organic fertilizer in the project area. These series of small projects will add value to the project and minimise resources utilization including the cost of transporting food stuff in the area, making organic fertilizer and more.

x) participate in economic development in the sector of tourisms (presence of Selous Game Reserve) and Stiegler’s Gorge Electricity generation plant in Rufiji basin by providing local inputs.

[2]). BOKASHI are Effective Micro-Organisms (EMO’s) (beneficial micro-organisms) occurring naturally in different environments, which can be used for improving microbe diversity in soils and plants. These bacteria start fermentation and decomposition of substances such as food waste.

7.0 CONCLUSION

7.1 Introduction

Tanzania is industrialising. Currently, most of what we grow, be it coffee, cashew, simsim, cassava, etc. is exported as raw material for factories elsewhere in the world. It is time to add value by processing and selling the final product which is more profitable but also creates jobs.

7.2 Post harvest loss.

It is a known fact now that farmers who usually grow crops depending on rainfall patterns harvest when everyone else is harvesting and therefore the market is oversupplied compared to demand. Situation is worse if the goods are perishable. As a result, they get very low prices and therefore impoverishing them more. Further, there is no consistency in weather forecasts coupled with climatic change effects and pests or wild animals like elephants and hippopotamus infestation. Unfortunately, also, agricultural insurance mechanism is not operational meaning that farmers bear all the risks. There is also a very high margin of post harvest losses due to poor storage and market because most farmers cannot grow out of season for lack of irrigation infrastructure. As a Nation, solutions to these problems must be sought and effected in order to protect farmers and eradicate poverty. In this regard the Company is playing a role of a responsible citizen to seeing it that it can work with the Rufiji people to avert this situation.

7.3 Implementation

This project is to be implemented in a phased approach, starting from planning and agro-forest, followed by adding value and hence processing, and exporting at a later stage to earn the country foreign currency. It is important to take note that Community involvement is incorporated in the project at every stage of project implementation. Equally important, the project seeks to protect environment and appropriate steps will be taken to prevent environmental degradation, educate, protect and preserve,nature.

It is a call for all to participate and play their part for mutual benefit.

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Appendix 1: Copy of Company certificate and registration number of JanD Farms Tanzania Ltd.

C.1

TANZANIA

BRELA
BUSINESS REGISTRATIONS AND LICENSING AGENCY

Certificate of Incorporation of a Company

Section 15

No: 138329798

I HEREBY CERTIFY THAT

JAND FARMS TANZANIA LIMITED

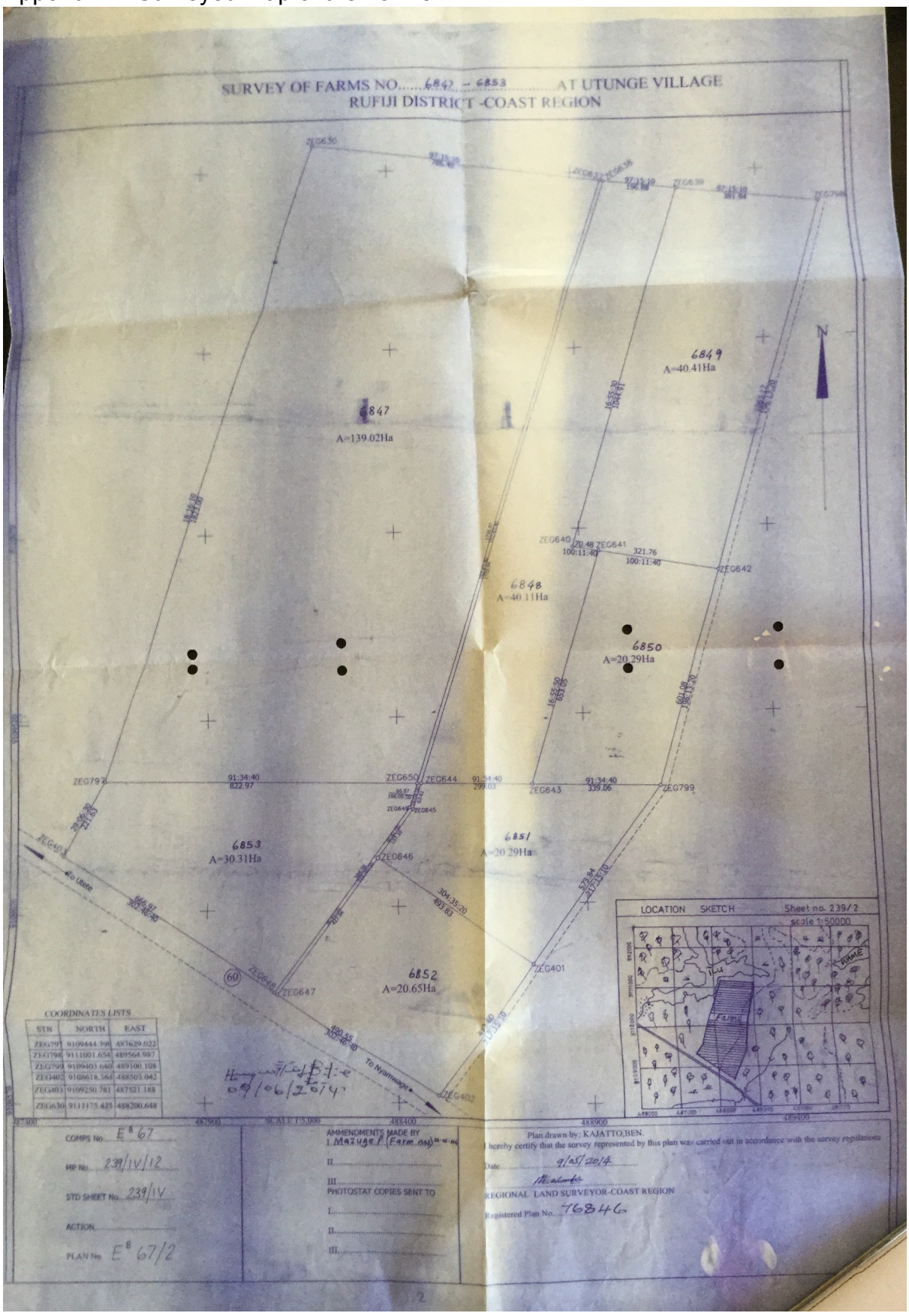
is this day incorporated under the Companies Act, 2002 and that the Company is Limited.

GIVEN under my hand at Dar es Salaam this 5th day of **DECEMBER TWO THOUSAND AND EIGHTEEN.**

REGISTRAR OF COMPANIES * TANZANIA *

SNR ASST. REGISTRAR OF COMPANIES

Appendix 2: Surveyed Map of the Farms

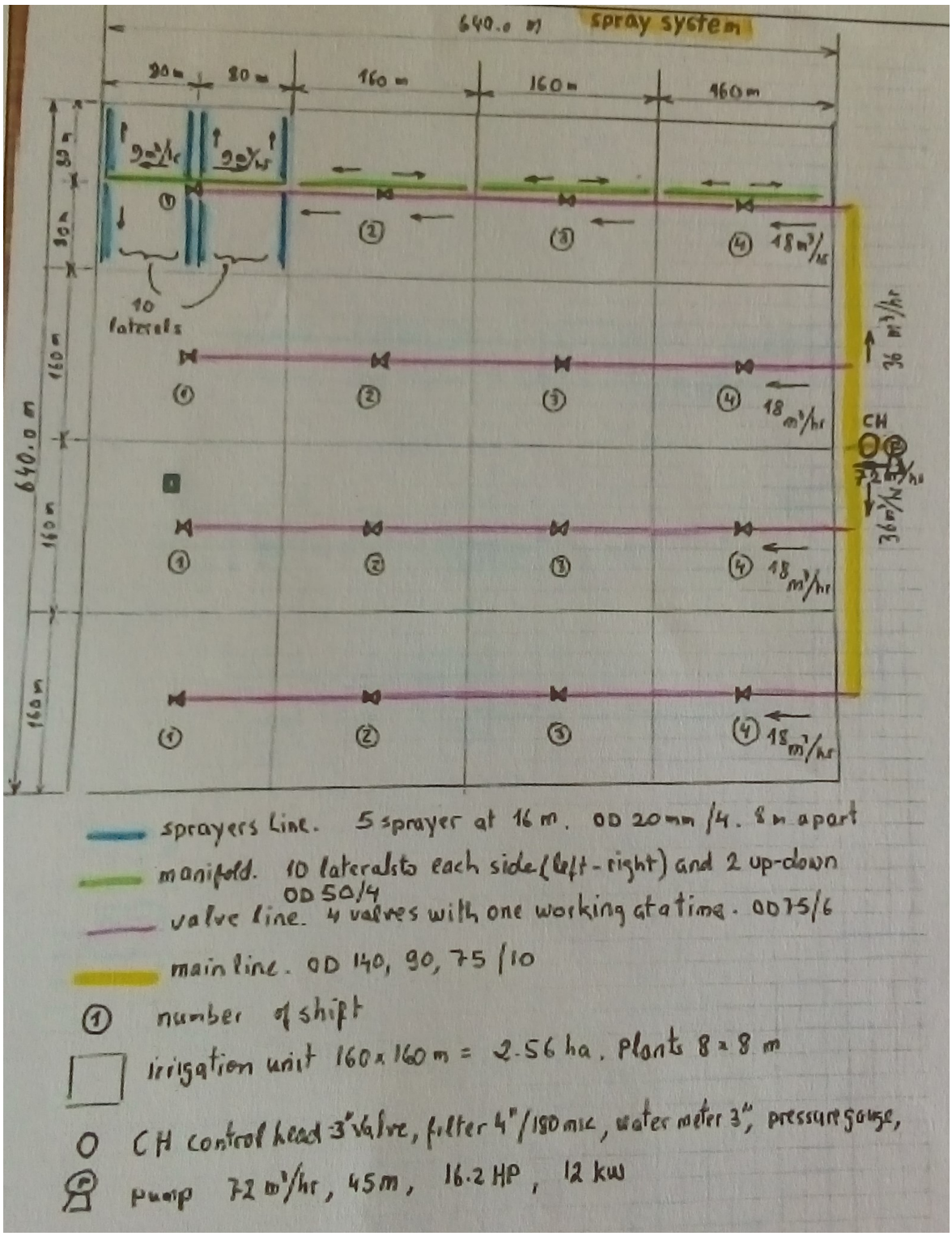


Appendix 3: Land Offers samples

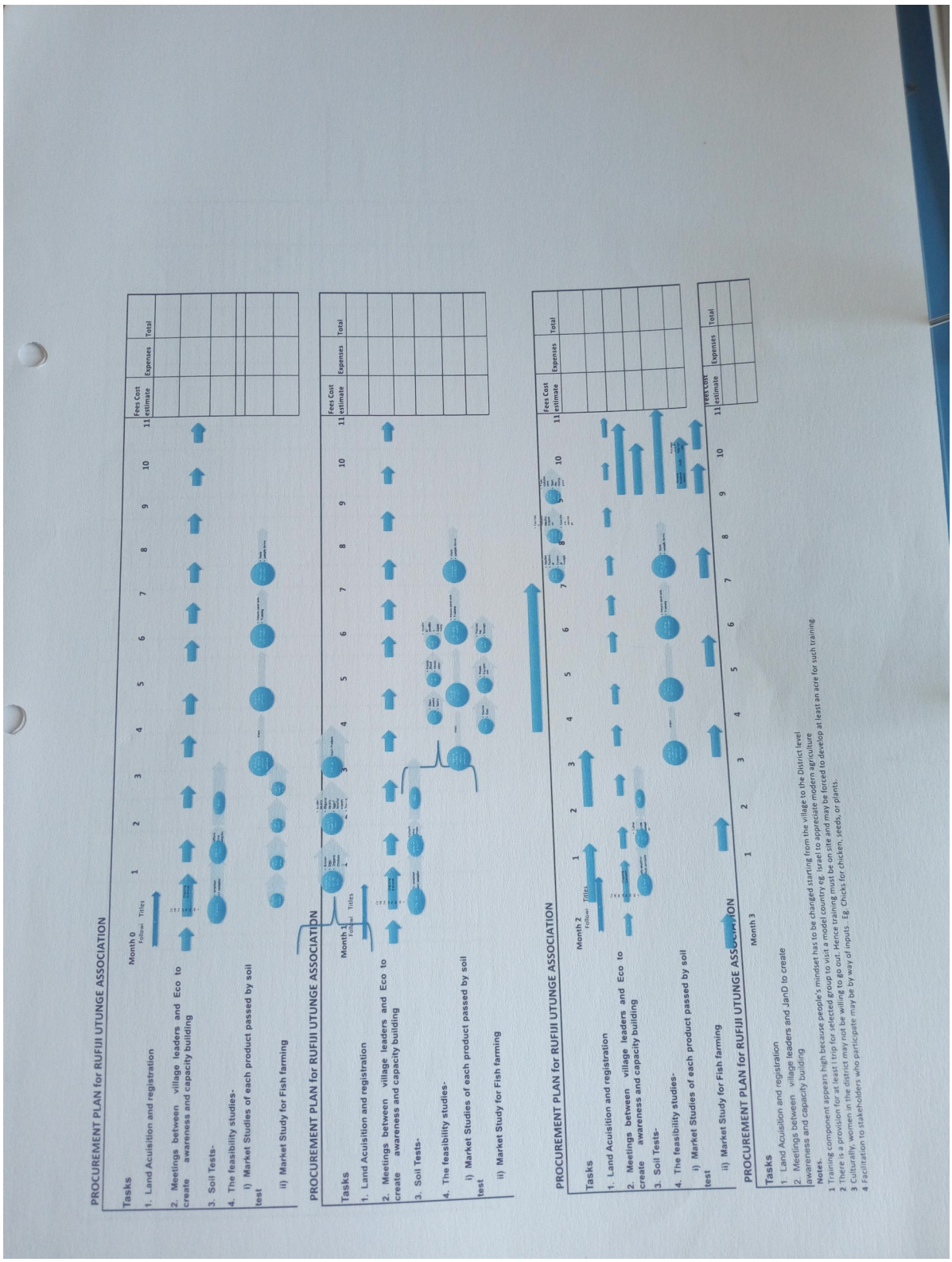
Appendix 4: Fourty acres survey

Appendix 5: Mlingano Soil Test Report

Appendix 6: Irrigation Infra-structure



Appendix 7: Procurement Scheduling



Appendix 8: Over draft Facility

And

Ability to implement the project

Appendix 9: Summary of Income and Expenditure.

	Income						
		2020	**2021**	**2022**	**2023**	**2024**	**Total**
1	Income from Paddy	174,000,000	182,700,000	186,354,000	186,354,000	186,354,000	**915,762,000**
2	Income from cashew	-	26,730,000	81,600,000	220,500,000	480,000,000	**808,830,000**
3	Income from Sim sim	21,000,000	42,000,000	63,000,000	84,000,000	105,000,000	**315,000,000**
4	Income from Honey	5,520,000	12,000,000	21,000,000	45,000,000	45,000,000	**128,520,000**
5	Income from Green House/hotculture	36,000,000	281,000,000	316,000,000	316,000,000	316,000,000	**1,265,000,000**
	Total Income	**236,520,000**	**544,430,000**	**667,954,000**	**851,854,000**	**1,132,354,000**	**3,433,112,000**
							-
	Less Expenses						-
1	Labour	142,140,000	278,898,000	306,720,000	349,920,000	349,920,000	**1,427,598,000**
	Other direct inputs	118,260,000	272,215,000	267,181,600	255,556,200	339,706,200	**1,252,919,000**
	Total expenses	260,400,000	551,113,000	573,901,600	605,476,200	689,626,200	**2,680,517,000**
							-
	Net Profit and or Loss before depreciation	**- 23,880,000**	**- 6,683,000**	**94,052,400**	**246,377,800**	**442,727,800**	**752,595,000**

Appendix 10: Steps of the Tangible Goals Framework

The framework of the Tangible Goals Approach as developed and is currently implemented by the JanD Farms Company and involves the following key areas:

1. Group mobilization
2. Confirming the groups
3. Entrepreneurship Skills Training
4. Setting goals
5. How to generate funds for achieving the goals
6. Development and implementation of tailor made courses
7. Follow-up
8. Monitoring and evaluation

1. Group mobilization

For social transformation to occur, the concept of groups holds an important component of the approach. After following all protocols with appropriate levels of the local government offices for community intervention in Rufiji, JanD Farms Ltd invited the rural farmers in a community to a public meeting. At the public meeting, the company officers explained the nature of the potential intervention project (fish farming and poultry production) and fully describe the intended impact. In the meeting, interested individuals were invited to form groups of individuals who will be able to work together on the intended project. The number of members in the group was suggested to range from 5 to 10 members. In the future, we may consider up to 20 members depending with the interested villagers showed up to join the project. A span of two weeks between meetings was left to allow interested individuals in the community to form their own groups. The village leaders are responsible to receive the names and list of voluntary formed groups.

2. Confirming the groups

After two weeks, the project officer collected the list of names and groups from the village leadership. Currently the project officers travelling to the community premises to familiarize themselves with the new groups, and to register the groups names by gender segregation, which will result in the formation of women's groups, youth and men groups or mixed groups with both men, women and youth. Currently the project is under this stage.

3. Entrepreneurship Skills

All members of the groups will be invited to training sessions with consideration given for farming schedules, household duties and community scheduled events. This training will be organized at selected centers (probably in Morogoro region) or

done at the groups' site. The training will use a minimum of print materials and relies on discussion and participatory methods.

A major emphasis is to allow target groups to appreciate "How to initiate and manage micro enterprises profitably". Contents of the business skills development courses are basic and simple. Training also will expose the target group to successful peer-owned enterprises both within and outside the geographical area. For example, the groups will be sent in the countries such as Israel to learn more about fish farming and poultry production. The target groups will be exposed to appreciate achievements of other people involved in this kind of production. Specific component of farming such as poultry production and fish farming will be taught during the course. This will take six months to one year to complete.

4. Setting goals

At this juncture, the groups will be versed with basics of business development skills. They will also be aware of what successful peer groups have achieved in their localities and other areas. Facilitators (Project officers) will request each group to hold meetings to set goals individually and also as a group. Each group member will set a goal they want to achieve after a certain period of time, something he/she does not have and would like to acquire by participating in the project. Goals that are encouraged to be set are tangible, such as having a transport facility or a modern house after a set period of time like one year or after the project life span. The goals are announced by each one to all group members. This is commitment. The project officer will be there to listen and guide and record.

Project officers will summarize individual goals and then cluster them. Examples of individual goals are:

- Owning livestock/poultry preferred
- Constructing a modern farm house
- Having a developed farm
- Owning transport facility

5. How to generate funds for achieving the goals

Each group member then will considers an enterprise he/she can do to raise the funds needed to attain the tangible goal and emphasizes an enterprise from within the community using local resources. The enterprises identified form the basis of tailor made courses provided by the JanD Farms Ltd. Several training courses will be developed to suit the identified enterprises. (Enterprises will be focused on poultry production and fish farming or any other related enterprise/production).

6. Development and implementation of tailor made courses

The project officer will identify training needs on the said enterprises, locates curriculum from the NGOs, CBOs or develops new curriculum, and organizes training to a cluster of the same/similar clients. At this period, the groups will be

registered and work under the association which will be facilitated by JanD Farms Ltd company.

7. Follow-up

The project officer will guide the group members how to go about initiating the production phase, the marketing phase and managing the wise use of earned funds to achieve the tangible goals. The main consumer of the products from the groups will be JanD Farms Ltd and link the producers/association with external markets.

8. Evaluation

Every year, all members of the groups in the project catchment area will meet together to report development. This will create a competitive attitude in the association. The reporting is followed by identifying the way forward to enhance achieving the tangible goals. The breakdowns of these steps are provided in the table below.

Table 1: Steps and implementation of Tangible Goals Approach

Steps	Activities	Implementation Details
1.	Community observation	Visit the community and record details about village structure, buildings, current businesses operating, and community members in their daily activities at the market and village center.
2.	Stakeholders meeting with village leaders	Stakeholders will be identified to be interviewed and these will be school head teachers, heads of faith based institutions, existing group leaders, elected officials. Identify numbers of women and youth living in the village. Identify what areas should be encouraged for production, processing, marketing and employment opportunities and identify available resources in the village.
3.	Community needs assessment in public meetings in sub-villages/wards	Extend invitation to all men, women and youth to attend. At the public meeting, project officer explains the nature of the potential intervention project and fully describes the intended impact. In the meeting, interested individuals are invited to form groups of individuals who may be able to work together on the intended project. The purpose of the community needs assessment was introduced and presented to women and youth and to obtain their agreement to participate.
4.	Group formation	After two weeks, the project officer will collect the list of names and groups from the village leadership. A team of project officers will travel to the community premises to familiarize themselves with the new groups, and to register their names by gender segregation, resulting in the formation of women's groups or youth groups or both.
5.	Orientation Meeting with women and youth	Collect information from women and youth about their current economic status and their economic and short-term life goals.
6.	Group meeting to introduce the concept of groups and tangible goals approach	After following all stages of government office for intervention, the rural farmers are invited to a public meeting. At the public meeting a project officer explains the nature of the project and fully describe the intended impact. In the meeting interested individuals are requested to form groups of individuals who may be able

Steps	Activities	Implementation Details
		to work together on the project.
7.	Development of training material and creation of lesson plans	The project officer will use JanD Farms Ltd developed training materials on basics of entrepreneurship. The training style is question and answer in an open and participatory model of training delivery (unlike formal schooling methods in Tanzania). Key concepts will be presented on flip chart papers in Swahili. Participants will record notes in their notebooks as they wish.
8.	Training on basics of entrepreneurship	All members of the groups will be taken into training. This will be organized in the selected centers or done at the group's site. A major emphasis is to allow targets groups to appreciate "How to initiate and manage micro enterprises profitably". Training on basics of entrepreneurship knowledge and skills will be provided. Members will be asked to propose what they would like to own in future as a result of participating into this project. They will be given some few days to think about this.
9.	Listing existing community enterprises	After having the basics of entrepreneurship members will be asked to identify all income generating enterprises in the community.
10.	Meeting to propose and identify individual Tangible Goals	At this juncture the groups will be versed with basics of business development skills. Facilitators (Project officers) will request each group to hold meetings to set goals individually and also as a group. Goals which will be encouraged are the tangible one. Goals like having a modern house after a period of time like one year, two or project life span. Each one sets a goal to achieve after a certain period of time, something he/she do not have and would like to acquire by participating in the project. The goals are announced by each one to group members. This is commitment. The project officer is there to listen and guide.
11.	Meeting to propose individual income generating business/ projects	Following the presentation of their tangible goals groups will be ask to propose an enterprise each one may think of, and implement in the community to raise funds to be able to achieve the proposed tangible goal. Again they will be given a week to think about. The basics of entrepreneurship will guide them to make decisions of what enterprise each will choose. Each group member should consider an enterprise he/she can do to raise

Steps	Activities	Implementation Details
		that fund and emphasize an enterprise from within the community using local resources.
12.	Develop or locate training materials	The enterprises identified form a basis of tailor made courses. Several training courses will be developed to suit the identified enterprises. Project officer needed to do the following: - collect training needs on the said enterprise - develop curriculum - organize training to a cluster of the same/similar clients - guide how to go about on the production phase, market and wise use of funds to the tangible goals
13.	Democratic group processes	The group members brainstormed names for the group and voted for their choice. The group will elected a chairperson, secretary and treasurer as interim executive. Each person will vote in private by hand-writing names for each position on a piece of paper. They will also be facilitated to develop a constitution.
14.	Training on basics of financial record keeping	The researcher/facilitator will provide a lesson on "how to use the funds" (revenue and expenditure). Each group member will create their own record-keeping chart in their notebooks.
15.	Establishing micro credit facility, mobilizing financial resources	Each group member will need a financial capital to start the business. It is necessary that funds had to be solicited from within the group and outside. The groups will have a micro-credit lending basket concept and will initiate a micro credit facility. Each one may contribute Tanzania shillings 1000 which become the capital to be borrowed by members and paid back in a month with 10% profit. Rules about lending will be established by the group members.
16.	Official inauguration of the group	The elected Councilor of the ward, village leaders, and friends will visit the group and will impress the plans especially on their tangible goals and also on the provision of entrepreneurship training.
17.	Monitoring and	The project officer will meet with the groups on a weekly

Steps	Activities	Implementation Details
	mentoring of the groups	basis to provide training, problem-solving, and monitoring.
18.	Evaluation of the project	All members of the groups in the project will bring together to report development. This creates competitive attitude. The reporting is followed by identifying the way forward to enhance achieving the tangible goals.